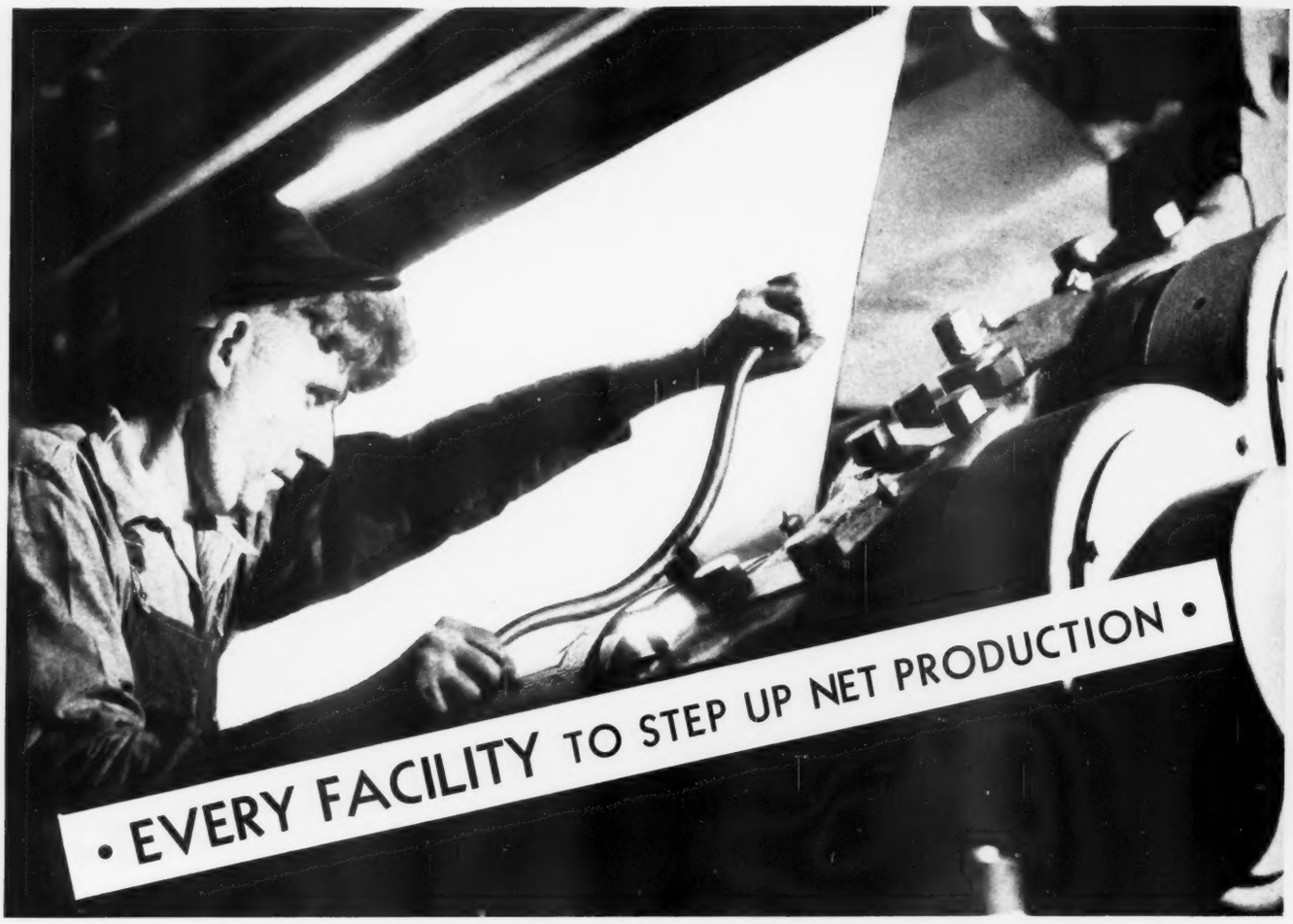
PRINTING EQUIPMENT ENGINEER

FEBRUARY · 1936

TECHNICAL PUBLICATION FOR PRODUCTION AN
CHANICAL EXECUTIVES IN THE GRAPHIC ARTS INDUSTR



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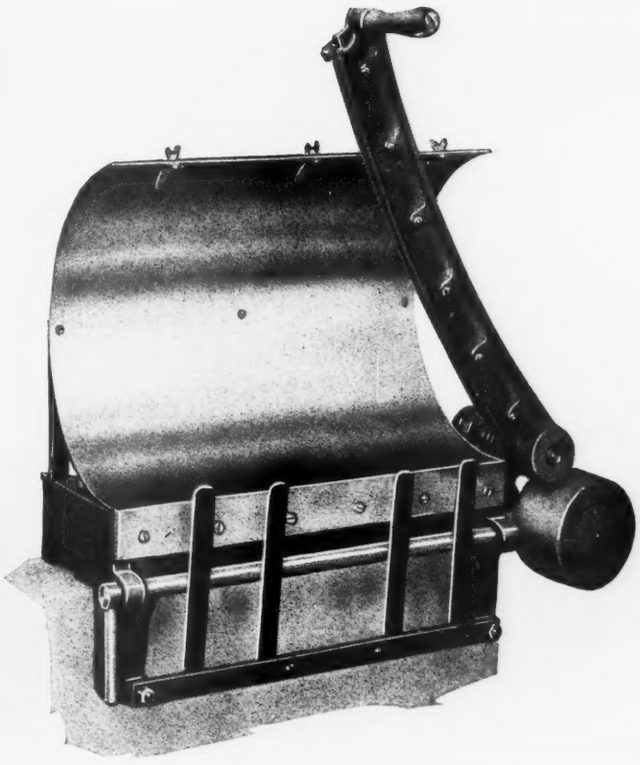

Patent Applied For

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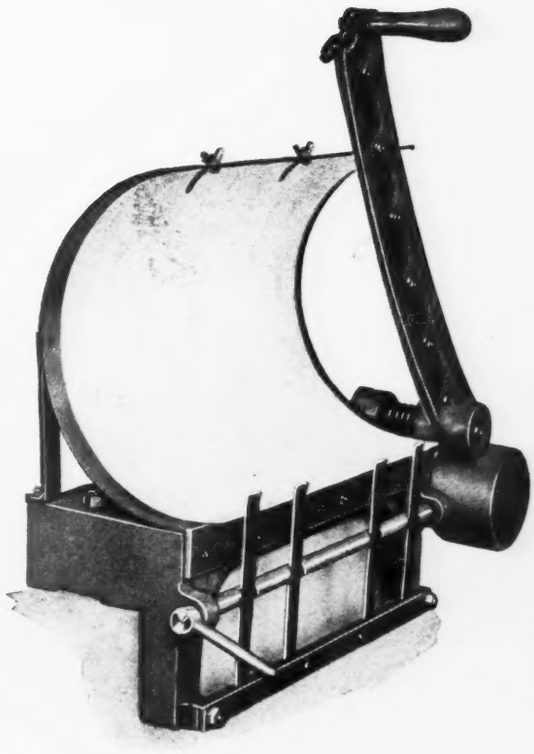

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LITHOGRAPHING AND PRINTING

STERLING QUALITY ESTABLISHED 1901

LEHMANN PRINTING AND LITHOGRAPHING CO.

LABELS

COLOR AND COMMERCIAL WORK

TELEPHONE GARFIELD 3912 400-430 FOURTH STREET

SAN FRANCISCO, CAL.,
December 3, 1935

General Electric Co.
Russ Bldg.
235 Montgomery Street
San Francisco, California

Gentlemen:

Attn. Mr. C.K. Herr:

Our new Harris offset presses have been in continuous operation now for several months, and it is a distinct pleasure to express our complete satisfaction with the General Electric automatic A.C. drives.

As you know, our previous experience had led us to believe that D.C. motors were essential for such service, and we were reluctant to follow your recommendation that A.C. drives be adopted for such important work.

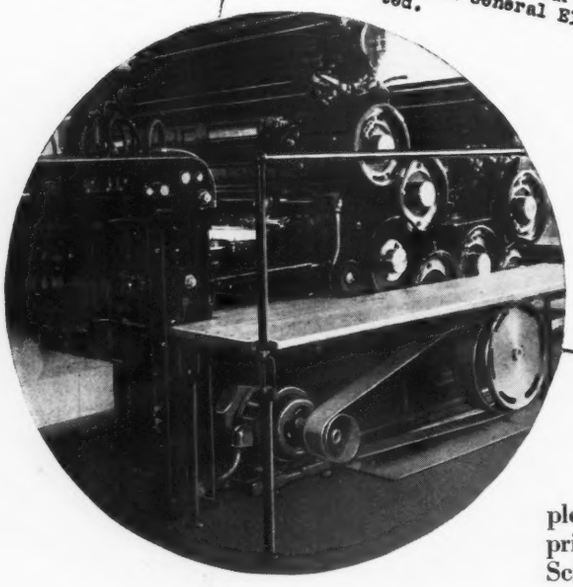
We are now convinced that this modern equipment with its smooth acceleration and accurate speed control will meet the most exacting requirements, while the saving on our power bills resulting from the use of A.C. power is very gratifying.

Your prompt and efficient service is greatly appreciated, and in our opinion, the wisdom of our decision to install General Electric equipment has been well demonstrated.

Yours very truly,

LEHMANN PRINTING & LITHOGRAPHING CO.

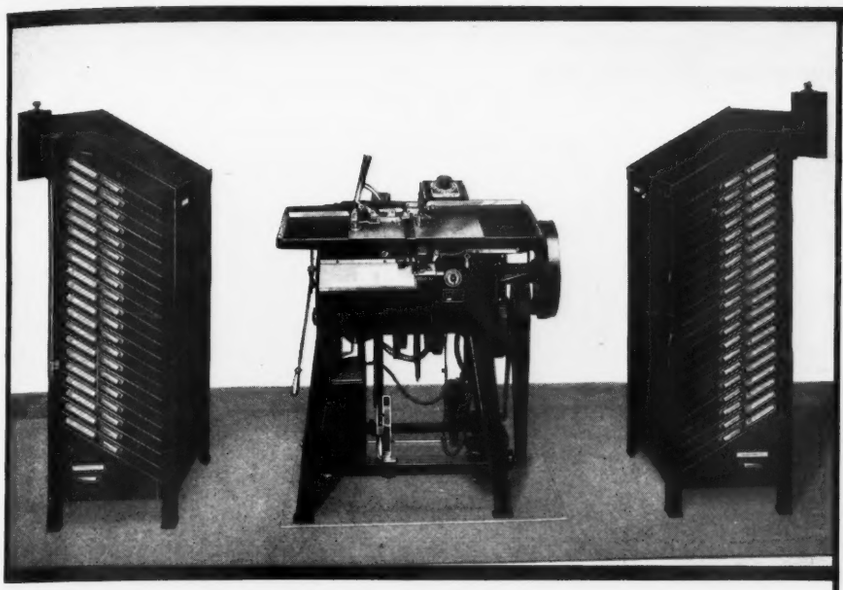
G-E a-c motors and control operate four Harris presses in the Lehmann plant, San Francisco



THE General Electric office nearest you will provide complete information on electric equipment for any press or for any printing plant. Or write General Electric Company. Dept. 6A-201, Schenectady, New York.

020-234

GENERAL ELECTRIC



Why the Ludlow is used in so many newspaper composing rooms—

Because it improves the typography of the paper and thus promotes linage sales.

Because its modern and effectively designed typefaces are popular with advertisers.

Because its straight-line method of production eliminates needless operations and thus cuts costs of production.

Because type supply can never run out, since the compositor sets up matrices. The resources of the composing room for setting advertising display are therefore unlimited.

Because of many other reasons which will be gladly presented on request.

Ludlow Typograph Company, 2032 Clybourn Avenue, Chicago

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Newspaper Ad
24 Pt. Ludlow 30-L Karnak Light

Bold Displays
24 Pt. Ludlow 30-M Karnak Medium

Endorse the Ludlow System
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New Slugline
24 Pt. Ludlow 30-H Karnak Black

Simple Designs Are
24 Pt. Ludlow 30-HC Karnak Black Cond.

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24 Pt. Ludlow 37-L Eden Light

Ease Of Operation
24 Pt. Ludlow 37-B Eden Bold

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24 Pt. Ludlow 36-BIC Mandate

FIRST BOOK
24 Pt. Ludlow No. 34 Umbra

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An ample supply of Elrod strip material makes for efficient composing room operation.

Ludlow Typograph Company
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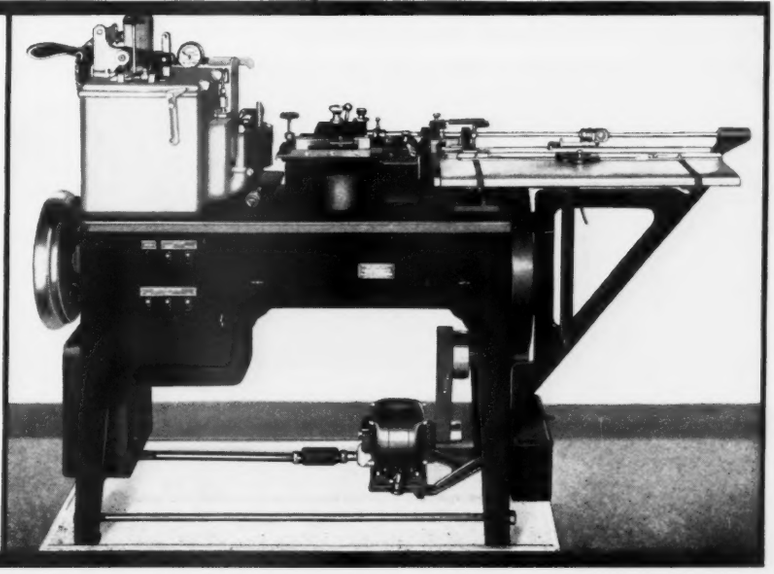

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1933—New York Times
1934—New York Herald Tribune
1935—New York Times

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These many highest awards speak for themselves – are proof positive that Goodyear Press Equipment gives sharper, more uniform impressions, better half-tone reproduction at top-speed metropolitan daily production. For complete information, write Goodyear, Akron, Ohio, or Los Angeles, California.

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GOODYEAR

MORE NEWSPAPERS ARE PRINTED ON GOODYEAR RUBBER UNDERPACKING THAN ON ANY OTHER KIND

Associate Member
National Printing Equipment
Association, Inc.

FEBRUARY 1936
Volume 51 Number 5

Printing EQUIPMENT Engineer

Trade-Mark Registered U. S. Pat. Office

Published by Don Will
Edited by Mac Sinclair

A Technical Publication for Mechanical Executives Responsible for Printing Production, Equipment and Supplies in the Commercial, Magazine, Private Plant and Daily Newspaper Fields.

Established 1910

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Share Your Knowledge With Others

The key men in your organization will appreciate looking over the pages of this magazine. Perhaps one of them will be able to put some particular technical idea to good use in your plant.

Place a check mark in each square for attention of the department head or assistant whom you wish to look over special articles in this issue.

- ☐ *Production Manager*
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- ☐ *Monotype Department*
- ☐ *Photo Engraving Department*
- ☐ *Foreman Lithographing Department*
- ☐ *Superintendent Stereotype Foundry*
- ☐ *Superintendent Electrotype Department*
- ☐ *Superintendent Press Room*
- ☐ *Bindery Foreman*
- ☐ *Manager*
- ☐ *Purchasing Agent*

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PUBLISHED MONTHLY AT 1276 WEST THIRD STREET, CLEVELAND, OHIO

EASTERN REPRESENTATIVE: RUSSELL BIRCHFIELD, 509 FIFTH AVE., NEW YORK, N. Y. PHONE: VANDERBILT 3-5191.

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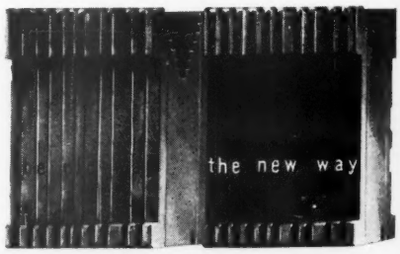

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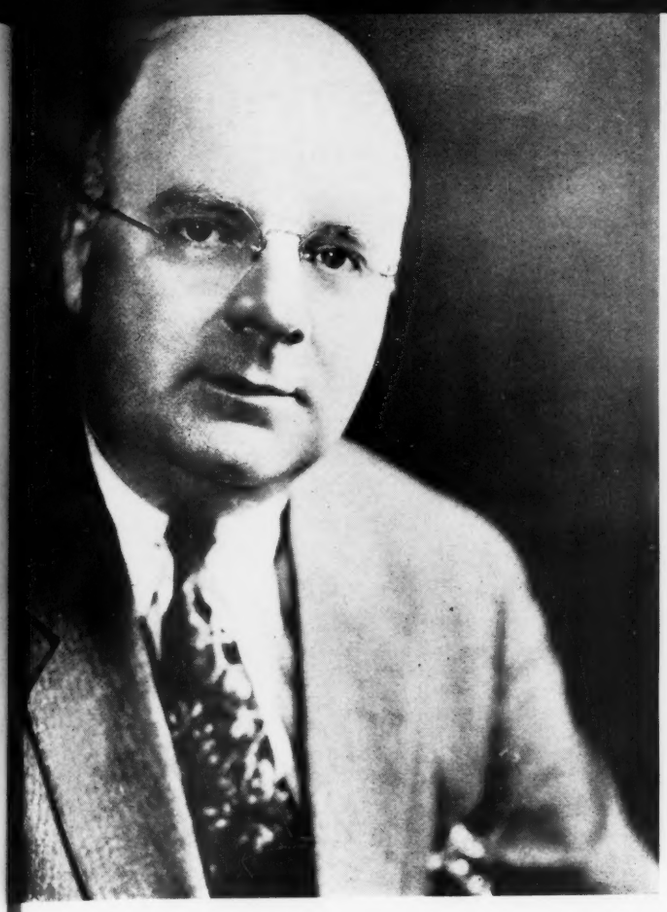


G.P.O.

Technical Side Described for Mechanical Executives

By A. E. GIEGENGACK*

IF a complete story about the United States Government Printing Office could be written, its history would be intriguing to the average printing-minded citizen. The welfare work sustained for the benefit of its employees is a vital part of the organization spirit which would make a story in itself. Working regulations and qualifications for employment form another interesting angle. To the average printing plant mechanical executive who is necessarily production-minded some data as to the extent to which machinery and necessary equipment are employed perhaps would be of greatest interest.

Many printing plant mechanical and production executives who have visited the Government Printing Office have been impressed tremendously with its physical size and the amount of machinery used to produce the 70 daily, weekly and monthly publications with editions running from 200 copies to over 200,000 copies each. In addition, many and various kinds of printed matter for all Government departments are produced.

THE COMPOSING DIVISION

In presenting production data on the Printing Division of the Government Printing Office for those who have not had the opportunity of visiting the world's largest printing plant, as well as those who have visited it but would like to know more about its technical side, it is well to start with the composing section in which are contained 406 typesetting and casting machines, including 174 slug-casting machines and 130 monotype casters, fitted with electrically heated metal pots and automatic feeders; 100 monotype keyboards; and 2 Ludlows—by far the largest number in any printing plant. There are on hand a total of 1,741,117 matrices for casting a vast variety of type faces and sizes. These machines set about 2½ billion ems of type annually. It has been estimated that the Government Printing Office could set up, print, and bind a book as large as the Bible in 24 hours.

Many of the composing machines are operated 16 hours daily, especially when Congress is in session. The daily *Congressional Record* is set up, printed, and delivered in 12 hours each night, regardless of the number of pages. The largest daily *Record* to date contained 366 pages.

A special section of the Printing Division, with 64 typesetting machines, 4 presses, and a proofroom employing 80 proofreaders, is devoted exclusively to the printing of patent specifications and the weekly *Gazette* of the Patent Office. Patent specifications printed in the fiscal year 1935 totaled 127,009 pages, costing $718,895. The *Gazette* made 16,148 pages and cost $131,211.

A branch of the Printing Division in the Library of Congress with 8 typesetting machines and 4 presses print library catalog cards, of which 22,694,395 copies in 60 foreign languages and dialects were produced in 1935.

There are 130,000 pages of type—650 tons of metal—held in the Printing Division on which the Departments pay monthly storage, so that the type may be used for future publications without additional cost of composition.

**Hon. Augustus E. Giegengack, United States Public Printer, Gives Facts About Equipment and Volume of Production in World's Largest Printing Plant.*

Architectural view of proposed new eight-story building for the Government Printing Office from the H Street side. Through the efforts of Public Printer Giegengack, an appropriation of $5,885,000 was carried in the Deficiency Appropriation Act and was approved by the President on August 12, for the erection of new buildings for the Government Printing Office. The preliminary work incidental to razing a group of antiquated structures, the erection of a new annex building and a warehouse with railroad siding running into it was made possible by provision of $2,000,000 for immediate needs.

Old buildings which compose present structures housing the Government Printing Office. These buildings will be replaced by modern structures.

The Printing Division has a total of 1,649 employees, including 1,118 printers, of whom 305 are type-machine and keyboard operators, 353 proofreaders, and 460 compositors; other employees of the Division include 71 monotype castermen and 41 machinists.

Platemaking Division

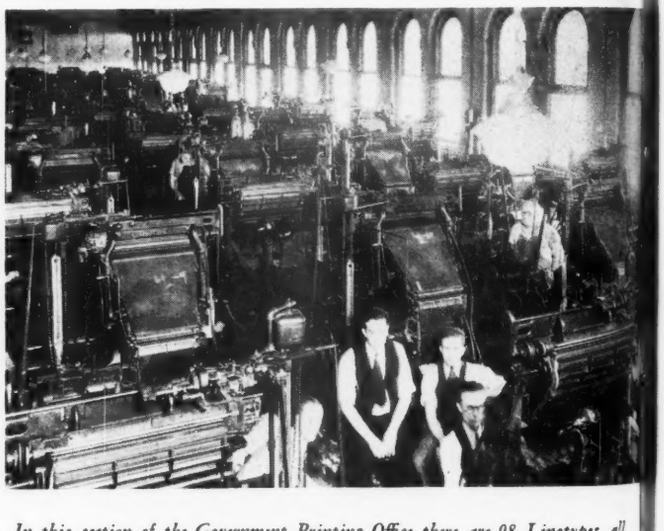
The Platemaking Division produces the stereotype, electrotype, and photo-engraving plates required for the various kinds of presswork and, in addition to this, all of the negatives used in offset work. The annual production is approximately 13,600,000 square inches. The Division is equipped with 2 electrically heated hydraulic matrix-molding presses; 1 roller matrix-molding machine; 4 electrically heated matrix-drying presses; one 5-ton electrically heated stereotype metal pot with 5 water-cooled casting boxes, and one 2-ton gas-heated stereotype metal pot for flat work; 1 hydraulic plate solidifying and straightening press; 1 lead molding press for halftone plates; 3 combination plate roughers and shavers; 16 plate routers; 18 saws and trimmers; 10 plate beveling and squaring machines; 2 plate straightening machines; 2 wax-ruling machines; 4 wax-molding presses; 2 semi-automatic copper plating tanks, each having a capacity of 1,250 gallons of solution for the rotation of 30 cases at a time; 4 nickel- and chromium-plating tanks; an electrically heated backing-up metal pot; wood-blocking equipment with dust-collecting system; and 5 cameras and other equipment for a complete photo-engraving section. In the Photo-Engraving Section all kinds of line, halftone, combination, and color plates are made, totaling over 600,000 sq. inches a year.

This Division has charge of the vast plate vaults in which are stored approximately 3 million electrotype and stereotype plates awaiting reprint.

The Platemaking Division numbers 165 employees.

Presswork Division

The press equipment includes 24 rotary web presses, 108 cylinder presses, 12 platen presses, 8 sheet-fed rotary presses, 10 automatically fed envelope presses, 16 tabulating-card presses, 2 web-fed fanfold presses with a combination winding and folding machine, 6 vertical presses, 2 embossing presses, and 4 rotary offset presses (one printing both sides at a time). The offset press section also has complete platemaking equipment, with duplicating, coating, and graining machines, and vacuum printing frames.



In this section of the Government Printing Office there are 98 Linotypes, all equipped with electric metal melting pots and electric bell system.

A recent addition to the Composing Section of the Government Printing Office. Seven Intertypes help meet composition needs of the world's largest printing plant.

Three of the 64-page rotary web presses were especially constructed with pasting and wire-stapling attachments, paper-collecting systems, and web moistening devices for printing the *Congressional Record*.

One of the web presses is especially constructed to print cards 3 by 5 inches, both sides, cutting and delivering an average of 500,000 per day.

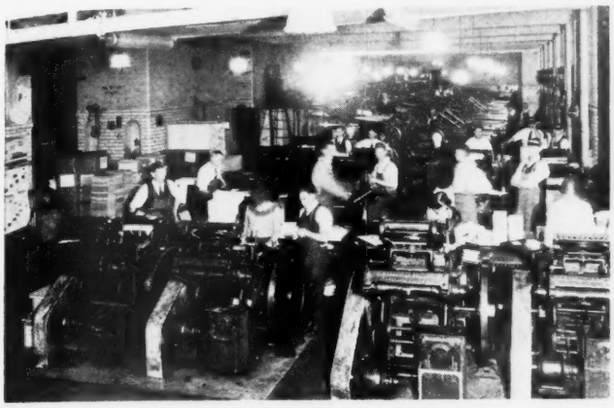
Postal cards are produced on 3 rotary web presses, each printing, cutting, delivering, and banding cards in packs of 50 at the rate of 6,400 per minute, with a total average of over 7 million cards daily and 1 billion eight hundred and fifty-seven million annually. The cards are packed in cartons of 500 each. Cartons are then packed in containers with a capacity of from 10 to 20 cartons each. For the convenience of commercial establishments, postal cards are also printed in sheets of 40 each and delivered in cases of 250 each to post offices throughout the country.

Postal money orders printed in 1935 totaled 228 million copies, which were shipped direct from the Government Printing office to post offices throughout the United States.

The tabulating-card presses produced about 300 million cards in 1935 for statistical and accounting use.

Emergency activities of the Government have greatly increased the volume of printing—especially in job work. The total output of job work for all governmental activities in the fiscal year 1935 was 4,402,454,664 copies —about 700 million more than in the previous year. The greatest monthly production ever attained was recorded in January 1934, with a total of 116,166,241 actual press impressions. Actual impressions for the fiscal year 1935 totaled 982,097,254.

In the last two years this Division has produced millions of impressions of the better grades of work—



Job Pressroom Section of the Government Printing Office. Here are shown platen job presses and automatically-fed flat-bed cylinder presses.

notably, illustrations and color work ranging from one to four colors, a great deal of which was produced on short notice.

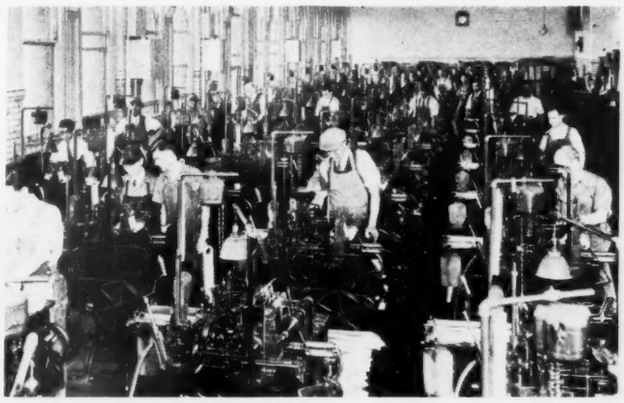
The Presswork Division has a total of 192 presses and 878 employees.

Binding Division

The Binding Division consists of three principal sections for book, pamphlet, and blank work, with a branch in the Library of Congress for repairing and rebinding library books and manuscripts. The Division has been completely reequipped in recent years with the most modern and ingenious machines obtainable and is considered a model for the entire bookbinding industry.

Among the bindery equipment are 57 cutting and trimming machines; 59 book-sewing machines; 29 sheet-folding machines; 14 pamphlet wire-stitching machines; 6 book signature gathering machines; 13 pen- and 1

Diviston of Tests and Technical Control. Here are tested all materials used in the Government Printing Office. In the section shown above electrotypers' materials are being tested.



Monotype Casting Machine Section, Government Printing Office. Here, 130 Monotype Casters are used in connection with 100 Monotype Keyboards for making type used in many government publications.

disk-ruling machines; 1 combination rounding, backing, lining, crashing, and head-banding machine; 1 straight-line crashing and lining machine; 1 forwarding machine, which attaches crash and lining paper to books, pastes end papers to cover, and automatically delivers the bound books to air presses in one continuous operation; 1 large perfect binder with roughing, fanning, gluing, crashing, and paper-covering attachments; 1 continuous case (cover) making machine with cloth roll feed; 4 other case-making machines; 3 casing-in machines; and 11 stamping presses.

Continued on Page 34

Interesting Career of Public Printer

Hon. Augustus E. Giegengack was born in New York City. His mother, Mary C. Fitzgerald, was a printer and her father a printer before her.

He served his apprenticeship in printing plants in New York City, later becoming a journeyman printer and member of Typographical Union No. 6. He was in charge of printing for the Charles Williams Stores, Brooklyn (1915).

In the World War he entered the service as an enlisted man in the Army and was chosen mechanical superintendent of the *Stars and Stripes*, official newspaper of the A.E.F., which had a circulation of 550,000 copies produced by a force of 200 men. The force was constantly shifting which made supervision of this important post a difficult one. He was instrumental in organizing the American Legion in Paris on March 15, 16 and 17, 1919, which formed the nucleus for the subsequent organization. Upon returning to the United States after overseas duties were completed, he continued his printing activities at the DeVinne Press. Soon after he became identified with a trade composition firm.

He served four years as president of the New York Association of Printing House Craftsmen and two years as president of the International Association of Printing House Craftsmen. He was president of the Typographers' Association of New York, an organization of employing printers in New York City.

Mr. Giegengack was appointed to promote and manage the New York Graphic Arts Exhibition in 1927, which included exhibits by the manufacturers of machinery, as well as educational enterprises for the industry in general.

Under N.R.A. Graphic Arts Code he resigned from his printing connections and became code director for the Typographers' Association of New York.

He is identified with a variety of fraternal, patriotic, professional, technical and social organizations as follows: Knights of Columbus; Elks Club; American Legion, Government Printing Office Post No. 33; American Institute of Graphic Arts; American Society of Mechanical Engineers; Calvert Club of Washington; Congressional Country Club, Washington; Beaver Dam Country Club, Washington, and the National Press Club.

His home is in Rockville Centre, New York.

Run-of-Paper Color Problems

Undoubtedly, mechanical and production executives who have been following the development of run-of-paper color printing in daily newspapers, will be interested highly in the discussion on this subject by John W. Park, Production Manager of the Chicago Tribune.

That run-of-paper color printing in dailies demands a technique peculiar to the rapid rate at which newspapers must be printed is demonstrated amply by the vast amount of research and experimentation conducted in the Tribune *plant. The problems of color printing are set up arbitrarily by fixed conditions, the principal ones of which are high-speed production within narrow time limits, lack of proper equipment and a wholly inadequate and generally unknown technique. Another important item, as is pointed out by the speaker, is that of the education of men in the mechanical departments with respect to color education.*—EDITOR.

Research

Improves Run-of-Paper Color Printing in Chicago "Tribune"

By JOHN W. PARK*

I DO NOT presume to tell commercial printers and lithographers how to do good color printing but we, as newspaper men, do pride ourselves in our color rotogravure printing. Mr. Tillinghast's remarks[1] this afternoon, as well as mine, are confined strictly to color printing in the news sections of the daily and Sunday newspapers, which I shall refer to as run-of-paper color. This sort of printing is not new, as Mr. Tillinghast has pointed out, but it has been done very sparingly until recent years. The newspapers doing a good job now feel quite proud of the improvement which has been made for a reason which I do not believe has ever been pointed out. It is this: A commercial printer, when given a color job to do, or color in a high-grade magazine, stresses all operations toward gaining a satisfactory job. He sets a sufficient deadline, makes plates on which he can make ready, proofs the plates and makes changes, makes ready on the press, prints at the speed which will give him the best results on his color printing, and in most cases prints his color separate from his black and white. In fact, he does everything that would tend to give him the most satisfactory printing results.

Now, I would like to emphasize the great difference in what the newspapers are doing in their run-of-paper color printing. We are adapting this color printing to a black-and-white news printing process which we have been using for years and years. We are using newsprint paper, running at extremely high speeds, printing on soft packing with ½-in. plates, with practically no makeready on the press, meeting the circulation department deadlines, the same as we did before we printed color.

Most of these things I have mentioned, as you will readily recognize, are not conducive to good results. Without changing the fundamental principles of our printing process, we have done a number of things which have helped us improve the printed results in the last few years. These are as follows:

The mechanical department has worked very closely with our own advertising art department and editorial department so that the copy is prepared in the best possible way for the process. The advertising art department has in turn informed the advertisers and advertising agencies of the type of copy and layout which will reproduce best.

One very important matter which we have always emphasized is the fact that at the extreme high speeds at which this color is printed the ink must dry very quickly. It dries mostly by absorption. If the advertiser is using two, three, or four colors, he must not expect more than 100 per cent absorption of all colors. For that reason, superimposing too much of one color upon another should be avoided. This was very ably treated in a recent article[2] by H. L. Foster, Mechanical Superintendent of the Minneapolis *Journal*.

Register, of course, is one of our very difficult problems. In order to register on the press we must certainly register our mats and plates before they reach the press. We have adopted a system of register marks on the original negatives which carry right through to the finished plates.

Our engraving-room plates are of metals which do not change shape readily under pressure and when heat is applied. Sometimes copper is used if we anticipate that there might be quite a bit of burnishing and re-etching to obtain the proper results.

Special bases and mounting system have been adopted, so that no matter how many times it is necessary to make mats from the form, the shrinkage of the base will not interfere with the register.

The bases and plates are placed in improved chases which do not permit of as much inaccuracy as the regular news chases.

We use the highest grade mats it is possible for us to obtain for our color work.

*Production Manager, Chicago *Tribune*. Abstract of discussion at first conference of the Graphic Arts Research Bureau, Cincinnati, Ohio, June 20-21, 1935.

[1]Abstract of Mr. Tillinghast's address at the Graphic Arts Research Bureau Conference, Cincinnati, last June was published in November, 1935, *Printing* EQUIPMENT *Engineer*.

[2]Published in June, 1935, A.N.P.A. Mechanical Conference issue of *Printing* EQUIPMENT *Engineer*.

Likes Editorial Content

San Francisco, Calif.,
January 2, 1936.

Printing EQUIPMENT Engineer,
Cleveland, Ohio.

Gentlemen—I have received copies of Printing EQUIPMENT Engineer *regularly and have only the highest praise to offer for the type of editorial comment being supplied your readers.*

B. A. HANSEN, *Plant Supt.*
The Recorder Printing & Pub. Co.

We use direct pressure for color, the mats being dried directly on the form in order to avoid the shrinkage which would throw us out of register.

A certain amount of makeready is done on the back of the mats, in order to hold back tints, protect edges of isolated tints, and to raise the solids.

A great deal of care is taken in the handling of the mats and keeping the mats in a dry condition until the casting is done.

We do hand-casting so that we can see that the original register marks of the negatives, which are ultimately transferred to the mats, register with the marks in the casting box before each cast is made.

After plates are cast, the dead metal is routed away and the plates are nickeled in order to withstand the long runs and strengthen the walls of the dots so that the tints will print evenly throughout the run.

The plates are prepared for the press so that after they are placed on the various presses by a special crew before edition time, they do not have to be moved materially in order to be in register.

We have special color attachments, or units, on each press that are fitted to print color in order to bring the several color impressions very close to each other for register purposes. In some cases, as Mr. Tillinghast has pointed out, these color attachments[3] are separate from the regular black-and-white printing units, but in most cases the black-and-white unit is made a part of the color attachment; that is, one or two printings of color are actually made by the regular black-and-white plate and impression cylinders, which means the use of thick plates and the same old soft packing which permits of very little makeready except for an occasional underlay of the plate under large solids.

We have devised small fountains,[4] attached to the black printing units, which are a great aid to the press crews because it relieves them of cleaning out the large news-black fountains. These also hold smaller quantities of ink and save us expensive colored ink wastage.

In order to permit as long a travel of the web of paper as possible, to allow the colored inks to dry, we have covered all idler rollers with "potato grater"[5] which is a thin sheet of metal with points extending out from the rollers. These points keep the color from touching any surface until the paper is folded. In this way we are able to carry more color and enliven the page.

Through the medium of all these things that I have mentioned, I am sure that we have improved the run-of-paper color printing greatly in the last couple of years. However, I believe that other newspapers that are printing color will agree with me that we have just started. What we have done has proved to ourselves, and I hope to a number of advertisers, that we can do a real job for them in color at high speeds, with late deadlines and at reasonable prices on the news pages of daily and Sunday papers.

To date the main thing that has been accomplished is the education of the men in the various mechanical departments, most of whom, up to several years ago, had no experience except in black printing. A great many of these men had to be taught to recognize colors. Most of them would not know that two colors would not match when laid down opposite each other until they were taught just how to know it and the importance of it. In other words, they did not know what was expected of them until someone taught them, and experience let all of this education sink in.

Next to the educational work is eternal vigilance. In order to maintain this vigilance it is extremely important that each newspaper have some one in its organization with color taste and judgment, and knowledge of the process. I mean some one that can say, "No, this is not good enough," when they see a proof and send the work back to be improved.

We are now running color on our highest speed presses at a speed of 40,000 papers per hour and using the strongest colored inks we can buy, but still our speed is limited by the color offset in case we get too ambitious in the pressroom. We want to print color on our news presses at a speed of from 50,000 to 55,000 papers per hour, but to do so there must be a radical and basic change in the colored inks available for this purpose. . . . The ink companies are working toward this end and the newspapers are very hopeful that they will make this improvement in the near future.

In 1934, the Chicago *Tribune* printed 305 full pages in run-of-paper color. This is in addition to all color in comics and color rotogravure. There is no question that run-of-paper color printing is here to stay and is going to be developed to greater heights.

[3]See page 45, November, 1935, *Printing* EQUIPMENT *Engineer.*

[4]Described by Mr. Park at Detroit A.N.P.A. Mechanical Conference. See report of proceedings, Mechanical Bulletin 133, p. 211. See also article on auxiliary color fountains by Wm. V. Cowgill, Mechanical Superintendent, Cleveland *News*, p. 30, Nov., 1933, issue of *P. E. E.*

[5]See p. 9, article entitled "Potato Graters," Feb., 1935, issue of *P. E. E.* See also Impression Pete's remarks about Potato Graters, p. 23, April, 1935, *P. E. E.*

It was stated by Pressroom Superintendent Charles B. Little (Akron, O., *Times*) at the Detroit A.N.P.A. Mechanical Conference, that the material commonly called "potato grater" for attachment to idler rollers is known as Style A Fillet, plain steel stabbing and is 0.076 in. thick. The kind used by Mr. Little in color work is 1½ in. wide, comes in rolls of 500 lineal feet and at the time of the report was priced at $8.50 per thousand feet. The fillet may be obtained from Wickwire Spencer Steel Co., 41 E. 42nd St., New York, N. Y.

1936 Mechanical Conference

It has been announced by W. E. Wines, manager of the A. N. P. A. Mechanical Department, that the 1936 conference will be held in Chicago, Monday, Tuesday and Wednesday, May 25-26-27.

Expects to Use It Often

The November Printing Equipment and Supplies Reference Number of Printing EQUIPMENT Engineer *will have a place in my office library and I hope to put my hands on it quite often. You are to be congratulated upon getting into the trade such a well conceived publication.*

A. H. BURNS, *Mechanical Supt.*,
The New York Herald-Tribune.

Cabinet for Saw-Trimmer

By MORT MOEDER*

AT THE TIME of rearranging our ad alley it was decided to provide new cabinets for the Miller saw-trimmers, which would be made from more substantial material than those we had been using. In the accompanying illustration is shown one of these cabinets which was furnished by a local sheet metal works at a cost of $12.50 delivered.

This particular cabinet is made from 1/16 in. sheet steel, has welded joints and is reinforced with 1/8 in. by 1 in. by 1 in. angle iron at all corners.

The outside dimensions are as follows:

Height in rear, 57 in.
Vertical front height, 51 in. Front vertical elevation cut away 6 in. to provide angle iron rail sloping down from the flat top.
Width, 38 in.
Depth, 40¾ in.
Flat top, 22 in. depth by 38 in. wide.

A section of angle iron extends across the front of the flat top so that when galleys containing slugs or strip material are deposited thereon the top will not sag.

The cabinet is enameled olive green. The inside hood portion of the cabinet is enameled white (4 coats) and to a depth of 20 in. down the inside walls for light reflecting purposes.

The saw motor automatic starting control panel is mounted inside at the right and about 37 in. from the floor. In order to prevent metal chips flying into the control, the screened ventillating aperture in the top of the case was closed and knockout chips were removed from the bottom of the enclosing case to provide ventilation.

A hinged drop-door fitted with suitable catches for holding the door in both open and closed positions, extends entirely across the lower rear portion of the cabinet. Raising the door permits withdrawing a waste-receiving truck as well as affording a means for sweeping metal chips from the floor about the saw pedestal.

As will be surmised, the size, shape and construction of the cabinet prevents metal chips flying outside the cabinet while the saw is being used.

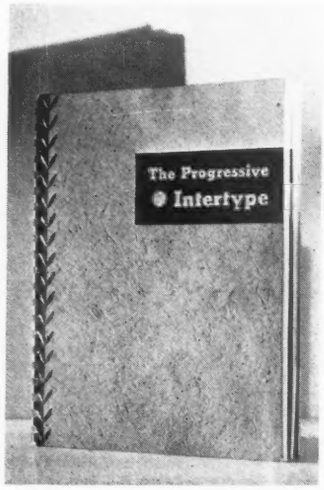
A sheet steel shelf with flanged edging, 10 in. wide by 18 in. long, is mounted at the right and slightly above the saw table level, for use when doing work on the saw.

*Superintendent Composing Room, Cleveland *Plain Dealer*.

This sheet-steel cabinet which houses a Miller Saw-Trimmer in the Cleveland Plain Dealer *composing room, is provided with a drop door at the back for easy removal of metal cart.*

Intertype Publishes Catalog

A new 64-page general catalog is being distributed by the Intertype Corporation. The book is 8½ in. by 11 in., attractively bound with plastic. It contains large halftones, nearly full-page size, of all the latest Intertype machines, together with numerous views of important parts of the various mechanisms. The book is divided into several sections, including the Model A-B-C group of Intertypes, the Models F and G mixer machines, the Model H display Intertype, and separate sections on recent Intertype developments such as automatic quadding-and-centering and low-slug quadding. The type used is Intertype Beton.



Intertype's new catalog is an excellent example of line-slug composition and fine halftone printing.

New American Type

American Backslant has just been announced by American Type Founders, Elizabeth, N. J. At the present time, it is available in 48, 36, 24 and 18-point sizes; 12, 14 and 30-point sizes are in preparation.

AMERICAN Backslant

Specimen of new type face by American Type Founders

. . . used for display in combination with conventional body text is said to provide high attention value while maintaining legibility. It is suggested that it be used for editorial headings in the magazine field. Unusual effects are possible by using it in close juxtaposition to italic faces.

Twenty-four point size of another new type face by American Type Founders

SHADOW

Glossary of Terms Used in Folding Box Plants

Die—The form containing the cutting knives and creasing rules. The knives and rules may be surrounded and held in place by either wood or metal furniture or blocks.

Metal Die—The form containing the cutting knives and creasing rules held in place by metal.

Wood Die—The form containing the cutting knives and creasing rules which are surrounded and held in place by wood.

Laminated Wood—A ply of wood in making up wooden dies. It is made of different woods thoroughly seasoned and glued together, usually with the grain of the different plies at right angles to prevent warping and shrinking.

Backing Up—Placing stay paper or metal strips under the creasing rules in the die to raise them to desired height.

Corking Die—Gluing pieces or strips of cork or rubber along both sides of the cutting knives to force the sheet off the die after it has been cut.

Cutting Knives—The sharp steel rules that cut the sheet. This rule is usually hardened, but a softer rule is needed for curves.

Creasing Rules—The rules that crease the sheet. May be of varying widths, to suit the thickness of stock being creased.

Cut Scores—Cutting knives that cut only partly through the stock for bending purposes. (Used only where creases are not desired.)

Packing—The sheets carried on the cylinder under the jacket, approx. 0.012 in. thick.

Make-Ready—The sheet patched up with gummed paper to make the cutting knives cut to uniform depth. It is placed in position on the cylinder under the jacket.

Counter—Pressboard or other kind of cardboard glued onto the outside of the jacket, into which the creases are cut.

Cutting Scores—Cutting the scores in the counter into which the creasing rules must register to make the proper crease for folding.

Nicking Die—Nicks put in the cutting knife to produce occasional breaks in a continuous line of cutting so there will be enough stock uncut to hold the sheet together for delivery purposes.

Width of Rules—2, 3, 4, and 6 points.

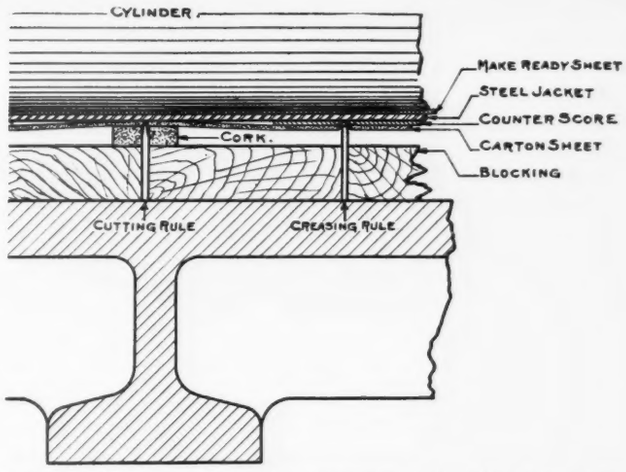
Height of Knives—No standard height; they vary from 0.918 in. to 0.942 in., but the heights generally used are 0.923 in. and 0.937 in.

Stripping—Operation of removing waste material.

Second Conference of Research Bureau

The second conference of the Graphic Arts Research Bureau will be held in Washington, D.C., May 11-12. Hon. A. E. Giegengack, U. S. Public Printer, will be chairman of the arrangements committee. This conference will be held jointly with the Graphic Arts Division of the American Society of Mechanical Engineers.

Editor E. P. Hulse has mailed notices to members requesting that William G. Dodge, Chairman Technical Committee, 220 E. 42nd Street, New York, New York, be notified respecting suggestions for the makeup of the Conference program.



Cross-section diagram to show cutting and creasing die for folding paper boxes on the bed of a press. Notice in the makeup of what is the packing in the conventional printing press cylinder that the cylinder is dressed with a make-ready sheet, a steel jacket and counter over the jacket. Notice also in this diagram that the cutting rule in the die is corked. The flexible corking will push the carton stock from the rule after cutting.

Folding Boxes

Discussion of Technique Used In Production of Containers

By W. R. Walmsley*

NOT so many years ago, folding boxes were simply paper boxes made to hold merchandise. They were rather crude in construction and design. As a general rule, the printing on them was in one color. How vastly superior are the folding boxes of today clothed in artistic designs and harmonizing colors!

In the production of folding paper boxes it is essential that a technique peculiar to the work at hand be given fullest consideration if the best results are to be obtained.

To begin the discussion, it is important to say that all possible care must be taken of the cardboard stock. Cardboard, like paper, is susceptible to changes in temperature and humidity, and when printing more than one color, it is essential that the stock should neither stretch nor shrink. The larger the sheet, the greater the stretch or shrinkage. To aid in the elimination of this condition, humidifiers are now in general use in folding box plants.

Moisture Content of Stock

An *even* moisture content in the stock is also essential, particularly is this a necessary requirement when the stock reaches the cutting and creasing machine, for a variation in the moisture content may mean the difference between boxes that fold perfectly and boxes that crack or break when folded. The moisture content should not be less than 6% nor more than 10%. To be considered a bender, a board should fold flat under the pressure of the finger, twice each way forward and back, in the same crease both with and against the grain, without breaking the surface fibers.

Types of Presses Used in Folding Box Work

The flatbed or cylinder press, the rotary press and the offset press produce the bulk of the folding box output.

*Miehle Printing Press & Mfg. Co., Chicago, Ill.

Encyclopedia of Printing Requirements

The 1936 Printing Equipment and Supplies Reference Number is a most valuable Encyclopedia of Printing Requirements and should be a very welcome reference book for any printing executive. I . . . shall make good use of it.
O. L. AUERBACH, *Manager Printing Dept. Firemen's Insurance Co., Newark, N. J.*

The flatbed or cylinder press produces approximately 60% of the whole; the offset 20%; the rotary press 15%, and all other methods combined 5%.

The two-revolution flatbed or cylinder press, manufactured in several sizes for printing one or two colors at a time, is the type of machine in general use. Its popularity is due largely to its production flexibility. It prints from flat plates, generally lead or wax molded electrotypes mounted in position by tacking them on upgrained wooden base, or placed on a patent metal base and held in position by hooks. Upgrained wooden base seems to be favored for short runs and patent metal base for long runs.

Rotary presses, using curved plates (electrotypes), are utilized principally for long runs and generally print two or more colors rubber.

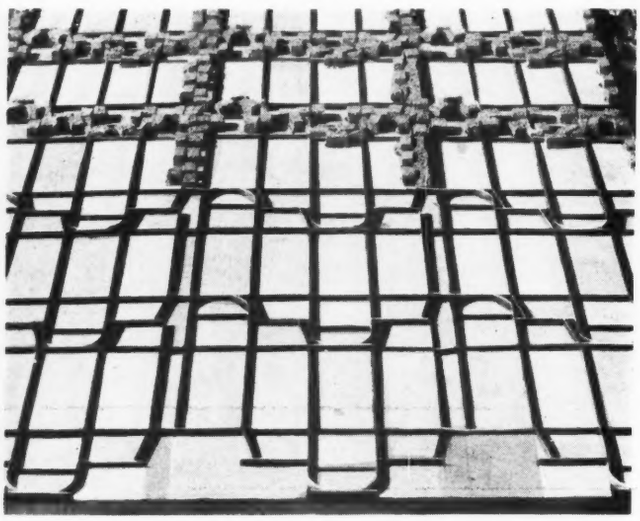
Rubber Plates for Printing Boxes

To some extent hand engraved and molded rubber plates are being used on flatbed and rotary presses for the printing of folding boxes. No doubt the success of offset lithography has been a contributing factor in the evolution of rubber plates.

Printing On Offset Presses

Where folding boxes are printed on offset presses, it is essential where the hand transfer method is used, that the transfer onto the metal plate be perfect in respect to position. If one box or row of boxes is out of position, an entirely new plate must be made, but if the entire plate prints long or short in relation to the creases in the boxes, the error can be compensated for by an appropriate packing under the plate.

As a rule, offset printing requires seasoning of the stock before printing when running two or more colors. The seasoning is largely necessitated by the solid pressure over the entire sheet when printing, the stock having a tendency to stretch under pressure if not seasoned. The method of seasoning is to hang the stock, holding it in small bunches by clips, and to allow the wind to blow through it for possibly an hour.



Here is a folding box cutting and creasing die made up. The die is partly corked as will be seen in the upper part of the die. The operation of corking a die is performed by gluing pieces or strips of cork or rubber along both sides of cutting knives to force the sheet of carton stock from the die after it has been cut.

Spraying Machines Prevent Offsetting

It has been the custom when delivering large sheets printed with solids or overprinting, to keep them in small piles to prevent offset, but this method has been largely superseded by the installation of spraying machines.

Allowance for Draw

Whether the printing of folding boxes is done by flatbed, rotary, or offset presses, it is customary to make allowances for the draw or the takeup of the creases when placing the printing plates in position. However, when the cutting and creasing die is placed on the cutter and creaser, made ready, and the creases cut and the position sheets run first, allowances for draw need not enter into the calculations.

It is the general practice to rub out by hand an impression of the cutting and creasing die, using carbon paper to transfer the outlines of the die to a sheet of paper. This sheet is then used for positioning the printing plates. Printing press top sheet paper has been proved to be the best for this purpose. After the print is made, the paper is oiled on the reverse side to make it transparent. This sheet is used direct in placing the printing plates in position on a flatbed or rotary press. If the box is to be printed on an offset press, the rubbed-out sheet from the cutting and creasing die goes to the layout man, and from his layout an offset plate is made.

If all printing, cutting and creasing of folding boxes were produced on a flat-surfaced press, such as the platen type, no allowance for the draw or takeup of the creases would be necessary, but because of the greater capacity of the cylinder press over the platen press, folding boxes are largely printed upon cylinder types of presses. The action of the sheet traveling around the cylinder is the cause for the creasing draw when the creases are cut.

Counter Thickness

Another factor is the thickness of the counter used on the cylinder of the cutter and creaser, in which is cut the female die for the creases. The thickness of the counter must be taken into consideration when cutting and creasing, since it determines whether the die cuts long, short, or exact. Cylinder presses have been converted into cutters and creasers, but seldom do the persons converting them give thought to the problem of long and short cutting. They simply attach a steel plate to the cylinder and when the counter is added to this plate, the circumference of the cylinder generally runs faster than the bed, the result being that the last rows of boxes in the sheet cut larger in size than the front or gripper edge row, although in the die they are all of the same size. If the boxes are to be machine-filled there will be real trouble as a result of the variation in size.

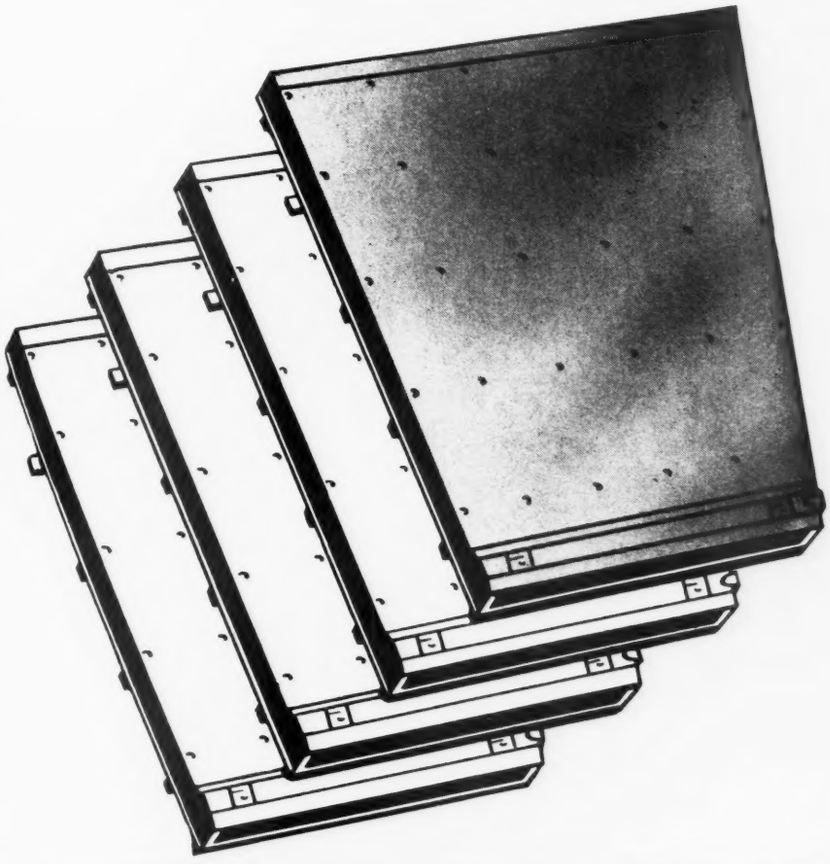
Specialty Box Machine

Recently there has been presented to the trade a small, high-speed cylinder machine of staunch construction. This machine will print sheets of cardboard up to 30 points in thickness, and in approximately five minutes

Continued on page 49

MODERNIZE FOR PROFITS

There are a number of recent Linotype developments that offer new speed and economy for your composing-room. Are you familiar with them? Here is one you should know about:



THE 4-MAGAZINE MODEL 8

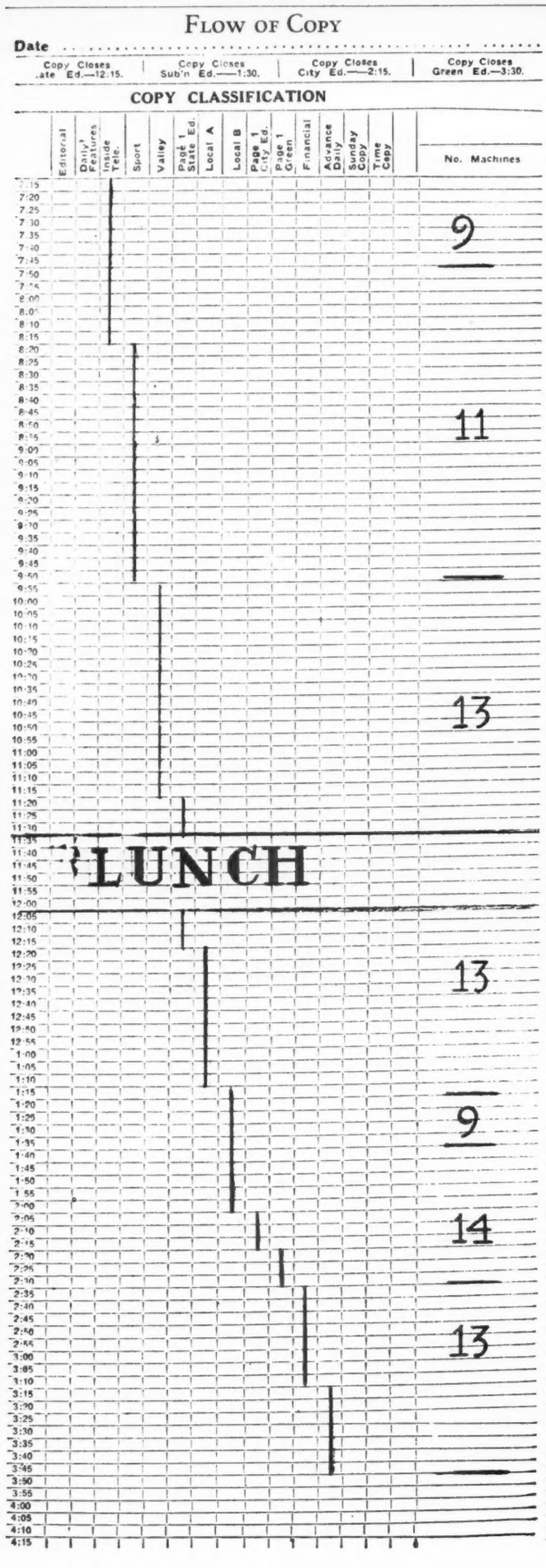
TRADE LINOTYPE MARK

FIFTY YEARS OF ACHIEVEMENT 1886 1936 LINOTYPE

Are there times in your composing-room when a *fourth* magazine would save frequent magazine changes? Then here is the Linotype you need. A Model 8 with *four* magazines instead of three. Four full fonts of matrices always on the machine . . . immediately available.

MERGENTHALER LINOTYPE CO., BROOKLYN, NEW YORK
SAN FRANCISCO · CHICAGO · NEW ORLEANS
CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA
Representatives in the Principal Cities of the World

LINOTYPE CLOISTER FAMILY


FLOW OF COPY
Date
Copy Closes late Ed.—12:15.
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Editorial
Daily Features Inside Tele.
Sport
Valley
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Local A
Local B
Page 1 City Ed.
Page 1 Green
Financial
Advance Daily
Sunday Copy
Time Copy
No. Machines
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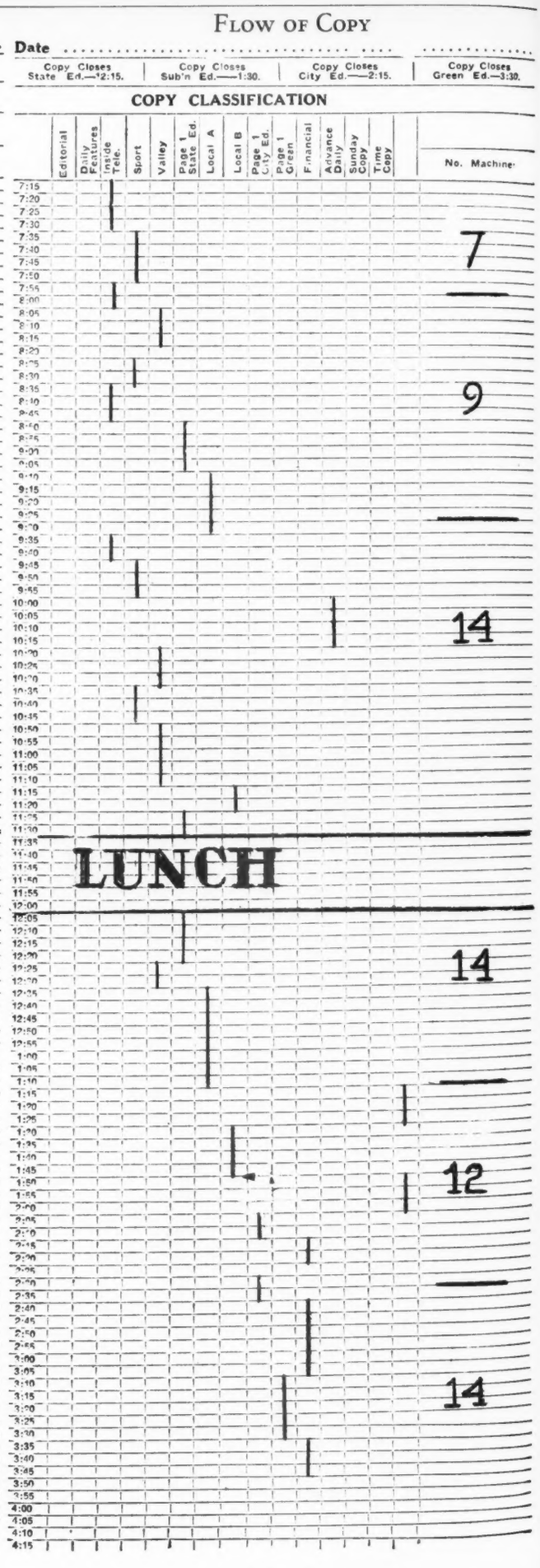
Fig. 1.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COPY CLASSIFICATION
Editorial
Daily Features Inside Tele.
Sport
Valley
Page 1 State Ed.
Local A
Local B
Page 1 City Ed.
Page 1 Green
Financial
Advance Daily
Sunday Copy
Time Copy
No. Machines
7
9
14
LUNCH
14
12
14

Fig. 2.

Graphs

Shows Flow of News Copy to Newspaper Composing Room

By JOHN A. BURKE*

JOSEPH ESTABROOK, superintendent of the composing room, of the Utica (N. Y.) *Observer-Dispatch*, has developed a system for showing the flow of news copy to the composing room. For those newspaper composing room executives seeking a means for analyzing kinks in production, its utility will be apparent at once. The relation of copy flow to the flexibility of the composing equipment, or its limitations if you will, can be determined through use and study of the graphs.

Mr. Estabrook's graph system consists of the several copy classifications handled by this particular paper which are listed in the order as run out by the copy desk.

Joseph Estabrook, Composing Room Superintendent, Utica (N. Y.) Observer-Dispatch, a Gannett Paper.

Starting at 7:15 a. m. (the hour the first composing room shift begins work) 5-minute units are listed at the left side of the graph, with a column at the right-hand side to list the number of machines working off the copy hook during any period of the day. As each classification of copy is run out, the copy desk cutter records the time consumed on each by drawing a line from the unit which such copy was started, to the unit at which it is off the hook.

If copy flow is right the graph should appear as in Fig. 1, with each copy classification routed through in the order listed at the top of each unit column, and it also shows the amount of time consumed on each classification. For instance, as the copy cutter should know the amount of time that should be taken by inside telegraph, any excess time shown by the graph indicates one of two things, or both—too much inside telegraph copy, or not enough machines working off the hook.

If the copy flow is irregular and it is impossible to follow the copy classifications as listed on the graph it will appear as in Fig. 2, jumping from copy that is for forms on a later edition and back again.

As the copy closing times for the four editions published are indicated at the top of the graph it is plainly shown that copy for, say, the city edition is being set when the machines should be setting state edition copy. As is the case in most offices, all feature and editorial copy are set a day or so in advance; these particular copy classifications are usually checked off at the last hour or so of the first shift.

*Production Manager, Gannett Newspapers, Inc., Rochester, N. Y.

Chemistry

In Relation to Effect of Inks On Plates Should Be Studied

By ROBERT F. SALADE

IN ORDER to illustrate the importance of the study of chemistry as to its application to printing inks, composition rollers and metal printing plates, a few well-known examples may be mentioned, as follows: (1). It is not an easy matter to print a delicate tint of ink—such as rose pink, lemon yellow, flesh, pearl gray, cream, buff or pale blue—from either an original line zinc engraving with solid areas, or from a solid zinc tint plate. The principal reason for this difficulty is that certain metallic elements in the zinc plates will gradually work out and affect the color of the ink being used, and the ink itself will have some chemical action on the zinc plates. Washing the surface of the plates free from the discolored ink, at intervals, will not solve the problem. There are only two remedies: One is to have nickeltypes made from the zinc plates and to use the nickeltypes for the printing. The other remedy is to have the zinc plates nickel-plated. No matter what the color of a printing ink may be, it will not be affected or changed in any way by the metal in a nickeltype, nor will the chemicals or pigments in any color of printing ink cause any damage to the surface of a nickeltype, a nickel-plated zinc engraving or a solid nickel tint plate.

(2). Various colors of printing ink, especially reds, blues and chrome yellow, will cause chemical damage to all kinds of copper printing plates, including copper electrotypes of original halftones. But, original copper halftone plates are not as readily affected by the pigments in colored printing inks as compared to copper electrotypes, because of the high quality of the heavy sheet copper used in the making of original copper halftones. (These facts on colored inks and plates apply to long runs of color printing.) The whole problem can be eliminated by having nickeltypes made from original copper halftones.

(3). Chromium-plated printing plates have certain advantages over original engravings and copper electrotypes, but they are not recommended for long runs of halftone process color printing or other kinds of color printing, unless special types of colored ink are used for the work. As a matter of record, for the finest process or multi-color printing, nickeltypes of the original color plates will produce better results in the finished work than chromium-plated electrotypes of any kind. For extra-long runs of black printing, on either rough-finish or smooth-finish paper stock, chromium-plated electrotypes will withstand great wear.

(4). When printing in colored ink is to be done direct from a form of type, and where it is necessary to have the true color of the ink show well in the printing, the best results can be obtained from foundry type. This for the reason that the special metal used for casting foundry type contains a considerable percentage of nickel, and the face of foundry type is finished with an exceedingly smooth and hard surface. Thus, the brightest shades of red, blue, green and other colors of ink can be printed from a form of foundry type without the color of the ink becoming darkened to any extent. These facts

Continued on Page 54

Best Issue We Have Achieved

Have just received the November Reference Issue of Printing Equipment Engineer *and want to be among the early birds to congratulate you upon what I think is the best issue you have ever achieved . . . It is hard to see just where you could have improved it . . .*

John E. Cobb, *Supt. Composing Room*
Western Printing & Litho Co.
Racine, Wis.

What Is It?

Elementals of the Lithographic Printing Process Explained

By Adam Henry Reiser*

PRINTING in any form is the art of putting ink to paper to convey a message. The message may be in picture form, in the printed word form or a combination of both may be used. Lithographic printing is being employed increasingly to deliver many types of messages. What is lithographic printing? In the rather brief space alloted us in early issues of *Printing* Equipment *Engineer* we shall give as clearly and concisely as possible, an elementary treatise on lithographic printing in its many forms.

Direct Printing

Probably the best way to tackle this assignment is to start from the common ground of direct printing. This is the easiest form that may be visualized and is the most common to the layman. When the paper or stock (material) upon which the printing is to be produced, comes into direct contact with and receives its impression directly from the printing surface, we are said to be engaged in direct printing.

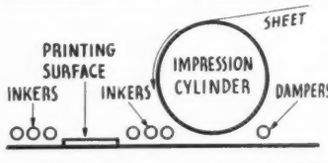


Fig. 1—Diagrammatic representation of a Litho Flat-Bed Printing Press to show method of operation.

Undoubtedly, the most elementary form of this direct printing is that of the rubber stamp. The raised portions of the rubber are inked when they contact the inking pad, the ink in turn being transferred to the paper when pressure is applied to the rubber stamp. Letterpress work, or typography as it is more familiarly known, rotogravure work and some lithographic printing are produced in a somewhat similar manner. It is true that in lithographic direct printing, a different printing surface is employed. But we'll go into that a bit further on. The important point here, is that direct printing is used in lithography.

Two kinds of presses are used in lithography in this direct printing. Fig. 1 represents a flat-bed press in which the impression is pulled direct from the stone or plate used as a printing medium. Fig. 2 pictures a rotary press in which the impression is pulled direct from the plate used as a printing medium. In both cases the paper upon which the printing is produced, comes into direct contact with the printing surface. But so does typography and gravure take its impression direct from the printing surface. Then wherein does lithography differ? Let's go a bit further and see.

Relief Printing

Letterpress work, like the rubber stamp with which we started, has all of its characters or design in a raised form, above that of the surrounding material of the printing surface. Consequently, when an ink roller passes over the printing surface (form), the ink just touches these raised portions which in turn redeposit the ink to the paper or whatever is brought into contact with them. This is known as relief printing, Fig. 3, receiving its name from the relief characteristic of the printing surface. Type, cuts in rubber, linoleum or metal; linotype, electros and other forms of letterpress work, and again some lithographic offset printing, other than the aforementioned direct printing, come under this head. Thus far we have listed two forms of lithography: Direct printing and relief.

Intaglio or Gravure Printing

Gravure, mentioned before as coming under the head of direct printing, would not be classified as relief printing. In rotogravure work, Fig. 4, the image whether it be pictures made up of screen dots, or whether it be lettering, is sunk below the surface of the printing medium (in this case it is copper). It is from this fact that the term *Gravure*, short for rotogravure is taken, coming from the French *gravure*, meaning engraving. In lithography we not only have offset relief printing but we also have offset intaglio (gravure). Again it is true that the printing surfaces of rotogravure and those of offset gravure are different not only as to metal and condition of the surfaces but also as to the method of printing from the two mediums. The similarity lies only in the work being sunk below the surface in both rotogravure and litho offset (gravure).

Planographic Printing

So far we have mentioned three kinds of litho printing: Direct, Relief and Intaglio. There is a fourth kind, which is employed in probably the major portion of the lithographic printing carried on today. The term, planographic printing, which applies to the state of the image or its relationship to the plane of the printing surface is sometimes loosely applied to a specific field of planographic work: that of the black-and-white field. Used in its broad sense, however, the term is self-explanatory: the word planographic being derived from the Latin, *planus* meaning level, flat, plane: combined with *graphia*, meaning writing, to write. Thus in planographic print-

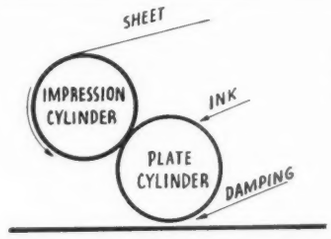
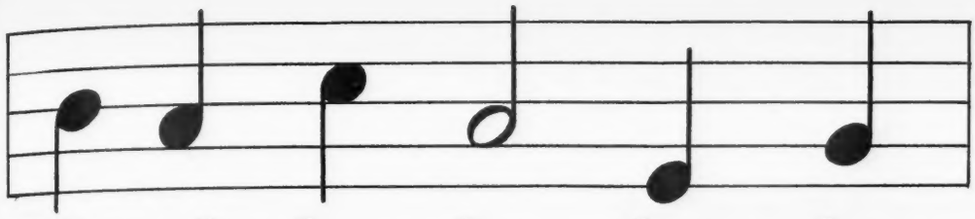


Fig. 2—Diagrammatic representation of a Litho Rotary Printing Press.

*Undoubtedly this article will raise some questions in the mind of the reader. The writer will answer gladly any of these that are made known to him.

Whoa-ho-ho - ho - ho - ho

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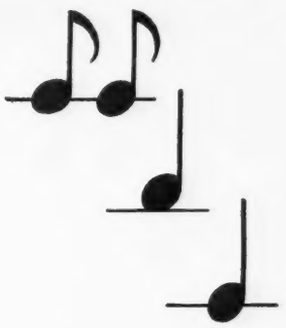

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ing we have printing from a writing on a flat or plane surface. From this definition may be derived an inkling of the nature of lithographic work of the past, with the two exceptions listed in preceding paragraphs. The work or design rests in the same plane as the rest of the printing medium, Fig. 5, not in relief as in letterpress; not below the surface as in rotogravure; but right on the

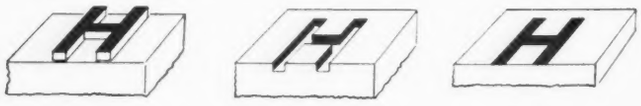

Fig. 3 *Fig. 4* *Fig. 5*

In these diagrams the black portions represent the inked areas of printing plates which transfer the ink to paper.

Fig. 3—Section of Relief Printing Plate. The ink rollers contact only the raised elements (images) which it is desired to print on the paper.

Fig. 4—Section of Intaglio (Gravure) printing surface. The upper surface is smooth in rotogravure printing. In Litho-Offset the upper surface is grained as in Fig. 5. The ink is deposited all over the plate (cylinder) in rotogravure printing and is scraped off the plate surface by a doctor blade previous to impression on the paper, leaving the ink in the intaglio or sunken images to be transferred to the paper.

Fig. 5—Section of Planographic Printing Plate. The upper or printing surface of the plate is grained. The ink rollers contact the entire upper surface of the plate, but ink adheres only to the dark portion (printing images) since the plate area surrounding the dark portion has been made ink repellant by means of a dampening roller.

surface of the plate or stone as in no other form of printing.

Dry and Wet Printing

At this point a question arises as to how such a form of printing functions. If the work is in the same plane as the printing medium, why, when the ink rollers pass over the plate, does not the entire plate take ink? That is a good question and brings up another point. Up to now we have compared lithography with other forms of printing in the graphic arts from the angle of the position of the design or image with respect to the level of the printing medium. From that we developed the relief, gravure and the planographic aspect of lithography.

Of course, under ordinary conditions, without proper preparation, the stone or metal plate used in wet lithography would roll up solid all over, should an ink roller be passed over the surface. But in wet lithography, the printing surface is chemically treated and prepared so the areas which are to remain free from ink will accept moisture from damping rollers that pass over that surface prior to inking. Then when the ink rollers follow the dampers over the surface, ink is rejected in the blank sections where the moisture has been accepted. These parts will then stay clean and print white. But where the image lies on the plate or stone, ink is accepted from the ink rollers, and, from the image or design finds its way to the stock for the job. Remember, the image is greasy and rejects the moisture from the damping rollers.

This is known as wet printing, the expression being used because of the moisture applied to the printing surface by damping rollers in the lithographic press. Of course, there is a dry lithography also.

In dry printing, such as takes place in letterpress work and in the intaglio-rotogravure work, and also in a form of lithographic-relief offset printing or high-etch work, as it is known, moisture of no form is necessary. In letterpress work, the image is raised and therefore accepts the ink easily. In gravure work, the entire printing surface is deluged with ink and the surplus is then removed with a scraper blade, leaving enough ink in the cuts or sunk portions. In litho-offset relief, the same condition prevails as in letterpress. Raised portions receive the ink and in turn deliver it so that it finally finds it way to the paper. Other forms of so-called dry printing are used in offset lithography. But since they are specialties and quite involved, we'll just skip them.

Not only is planographic lithography printed wet, but offset-intaglio (deep-etch) is also printed wet. Since the rollers have to roll along the printing surface in order to deposit ink in the cuts or sunken portions, the same chemical treatment as in planographic work is resorted to in order to keep the blank sections open or free from ink in offset-intaglio.

Three Types of Lithographic Presses

We have seen in our paragraph on direct printing that there is a flat-bed press and a rotary press engaged in the direct form of lithographic printing. Further on the offset press was mentioned. This is a third form of press

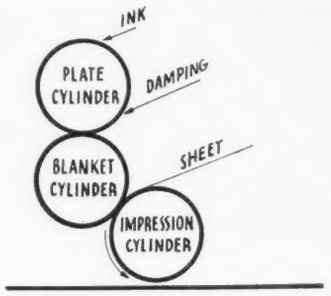

Fig. 6—Diagrammatic representation of Litho-Offset Printing Press.

carrying on an indirect form of printing in lithography, Fig. 6. Using the relief, intaglio or planographic type of printing surface, these machines print the image to a rubber blanket stretched taut around a cylinder. From this blanket the impression is made to the paper of the run. Most all of the lithographic work printed today which has been produced on the flat-bed or rotary press can be produced on the offset press.

There is so much embodied in the offset end of lithography that an entire article should be devoted to its clarification.

In this issue we have attempted to tell about direct and indirect lithography (offset): also of the three types of printing images employed in lithography, namely, Relief, Intaglio and Planographic. Then we told of the dry and wet printing applied to the various surfaces and listed the three types of presses used in lithographic printing, including a bit of the printing operation. In the next article, some of the fundamentals of offset lithography will be discussed.

Egmont Pen-Drawn

The Continental Typefounders Association has announced Egmond Pen-Drawn Capitals, a specimen of which is shown below:

EGMONT
CHARMS

The initials are intended for use for display lines and initial letter purposes. A specimen sheet showing the 30, 36, 48 and 54-pt. sizes has been prepared.

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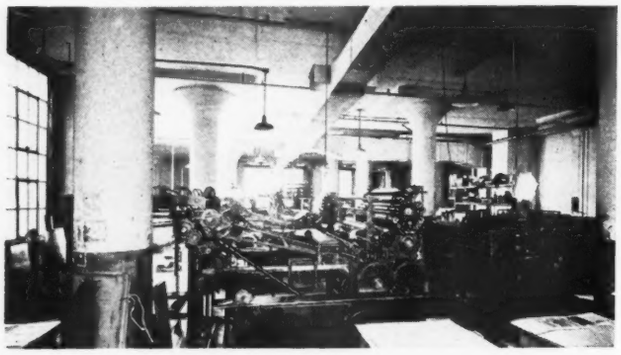


View of pressroom section in plant of the Ketterlinus Lithographic Mfg. Co., Philadelphia, Pa. Variations in paper stock sizes, due to temperature and humidity changes, is eliminated through the use of an air conditioning system. Courtesy York Ice Mchy. Corp., York, Pa.

Air

Conditioning Installation Gives Efficient Production Control

By Staff Writer

AN air conditioning system installed recently by the York Ice Machinery Corporation in the plant of the Ketterlinus Lithographic Manufacturing Company, Philadelphia, is showing results of a definite and satisfactory nature, aside from its obvious benefit to employees in greater personal comfort, according to J. L. Farrell, superintendent of the plant.

"The immediate benefit of air conditioning," said Mr. Farrell, "is that humidity in our pressrooms and in our plate-making room can now be accurately controlled, for when the humidity of the air starts to rise, it means trouble for the offset printer.

"Plate making is an important operation in lithographic printing. If the glue solution becomes too soft, proper production of plates is a difficult matter. With definite control and regulation of humidity in our plate-making room, we can obtain uniformly good results because we can keep the humidity constant at say 50 per cent, regardless of daily variations in atmospheric conditions outdoors."

"In the offset pressrooms, we find that air conditioning gives us another advantage with respect to troubles caused by shrinkage or stretching of paper, due to changes in weather conditions. High humidity causes paper to stretch. In offset printing for lithographic work we print one color at a time, or two colors at one run if a two-color press is used. Formerly when a change in the humidity caused the paper to stretch or shrink, we found when we came to printing the additional colors, (which might be several hours later or even the next day) that the paper had varied in size after printing the first color, making it impossible to get the best results. However, with humidity in the pressrooms under control there is practically no spoilage of stock due to weather conditions.

"Air conditioning helps us in the pressrooms by overcoming trouble with rollers and inking materials. In warm weather, or on any damp day, rollers had a habit of getting soft, but under the uniform conditions now obtained, the rollers work more evenly, and production is speeded up materially

"In printing by the offset process, water is used in order to keep the plates from getting too dry. Before we installed air conditioning we would have to keep the fountains wide open on a dry day to maintain the supply of water on each plate. Conditions of weather and temperature might change overnight and if the pressman should neglect to set his fountain back he might spoil a job or get an entirely different result than the day before.

"It is now possible to set our fountains at a certain point, and know that results will be uniformly accurate.

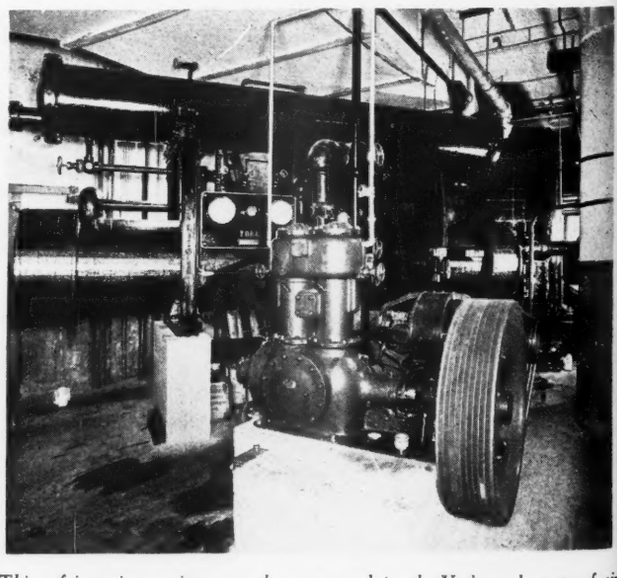
"You see," Mr. Farrell adds, "we are interested in humidity control from the standpoint of operation. Temperature control has definite advantages, too, in improving the personal comfort of our workers. Men do not perspire so freely, and paper can be handled more easily without soiling."

Air Conditioning Equipment

The air conditioning equipment furnished by the York Ice Machinery Corporation serves areas comprising approximately two-thirds of the third floor, the entire fourth floor where the pressrooms are located, and the plate-making room on the sixth floor in the Ketterlinus plant.

Equipment for the third and fourth floors consists of one 8 in. by 8 in. Y-34 York compressor; one 24 in. by 16 ft. shell and tube type condenser, one 28 in. by 16 ft. shell and tube water cooler, and a washer type dehumidifier. The shell and tube water cooler supplies chilled water to the dehumidifier, which cleans and conditions air returned from the conditioned areas. This conditioned air is then circulated through ducts at the rate of 31,600 cu. ft. per min. and distributed to conditioned areas. In the return air ducts, through which the air is conveyed back to the system for reconditioning, are installed automatic control equipment which regulates the operation of the system. The system is rated at 80 T. of refrigeration per day.

Water used for condensing the refrigerant is circulated through the shell and tube condenser and then to an indoor type cooling tower. Here it is finely sprayed in the path of an air stream, 36,000 cu. ft. of air per min., where the heat picked up in the building is transferred to the outside air. The arrangement makes it possible to use the condensing water repeatedly.



This refrigerating equipment cools water used in the York washer-type of air conditioning system in the plant of the Ketterlinus Lithographic Mfg. Co., Philadelphia, Pa. Courtesy York Ice Mchy. Corp., York, Pa.

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ESTABLISHES NEW STANDARDS OF MULTI-COLOR PRODUCTION

For example: 50x72 sheets, either super or coated, printed in four or five colors at speeds up to 4500 sheets per hour delivered in a single pile. • 25x38 presses, printing four colors, running at speeds up to 5000 to 5500 sheets per hour. • 32x42 four-color presses, sheet-feed, with speeds up to 5000 sheets per hour. • Cottrell distribution on both sheet-feed and roll-feed presses is the most perfect distribution of ink that has ever been obtained on a printing press. Other Cottrell features include 100% perfect register from starting to maximum speed—modern two-speed delivery—construction throughout for high speed operation—roller bearings, automatic lubrication. • *The days of four-color printing at speeds of 2500 and 3000 sheets per hour belong to the past. Modern Cottrell Multi-color Printing Presses have established new standards of speed and quality of printing.*

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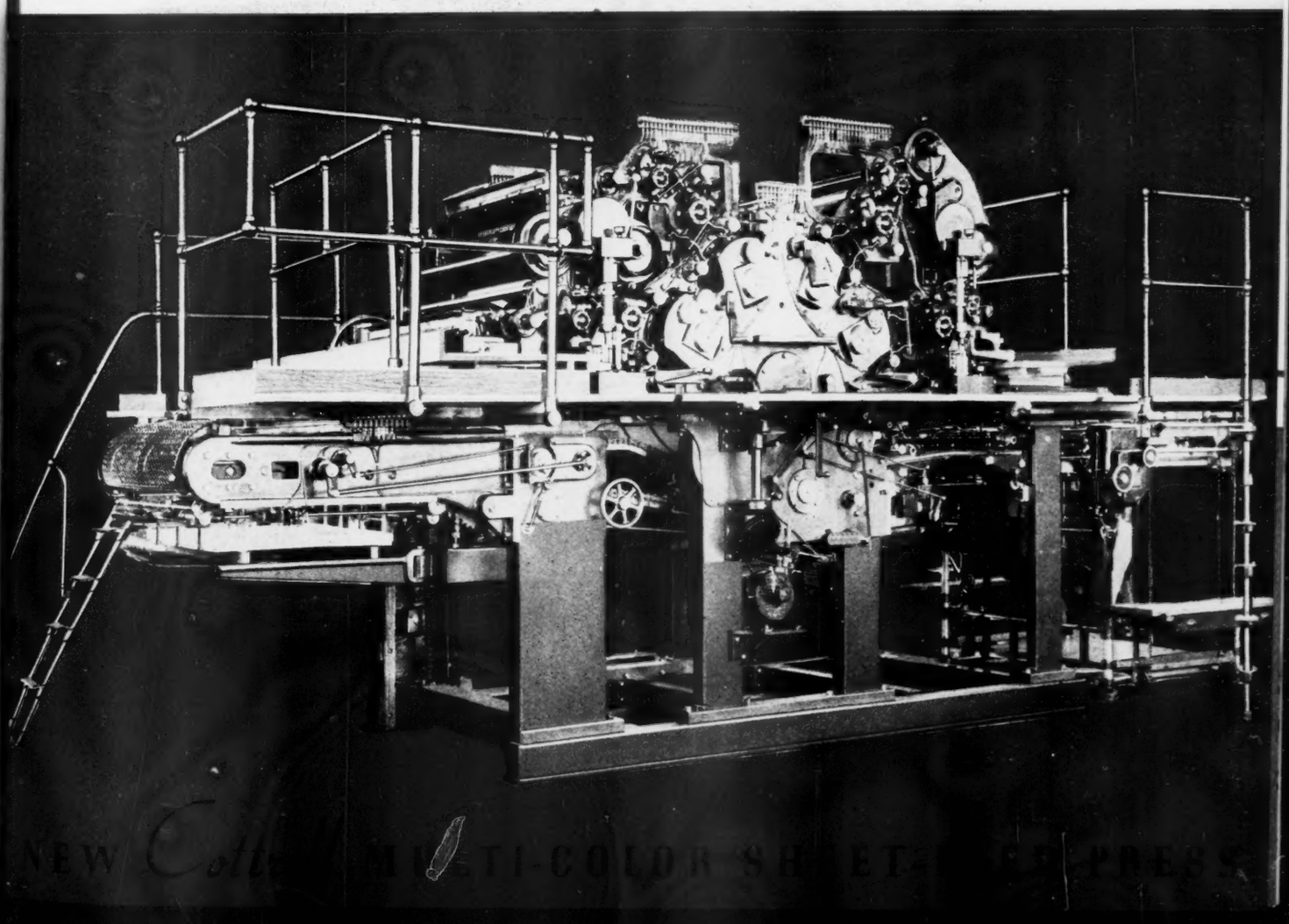


Rack

For Filling Type Cases Direct From Monotype Casters

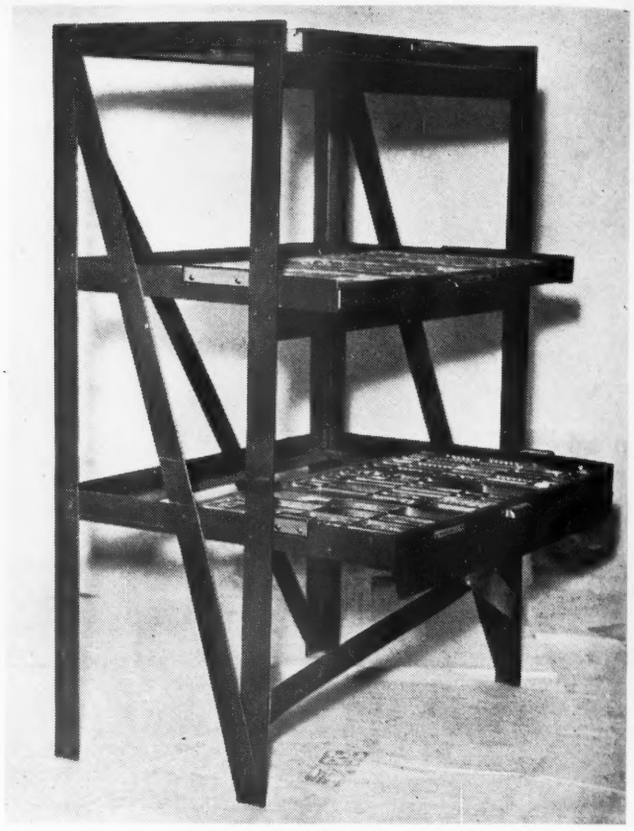
By H. George Gilbertson*

IN COMMERCIAL printing plant and newspaper composing rooms using the Monotype system where storage cabinets have been discontinued in favor of filling type cases directly from the casters, it is desirable to provide sufficient equipment of the proper kind to make the storage method a successful one as well as to take advantage of all the production savings possible.

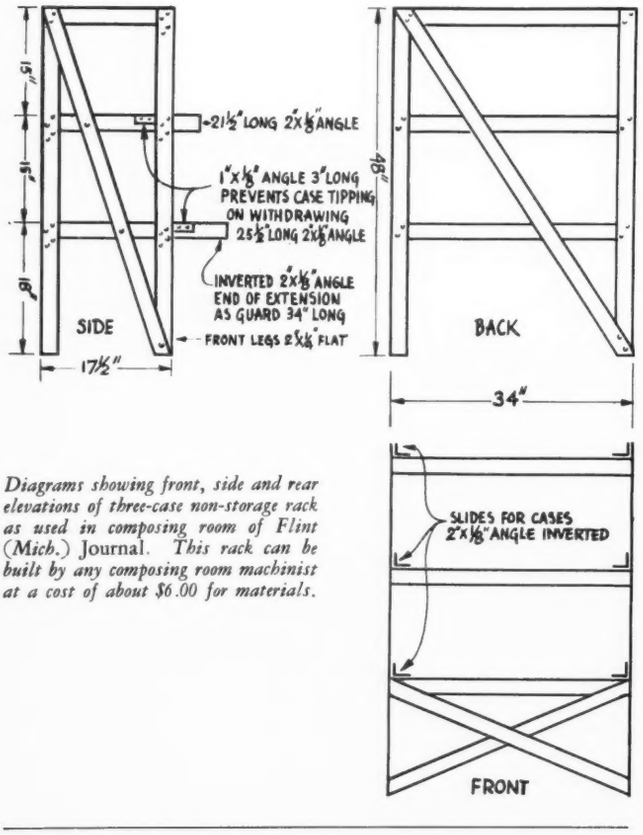
For lack of suitable equipment, after adoption of the non-storage plan in the Flint (Mich.) *Journal* composing room, several makeup trucks were used to support type cases while being filled at the caster. Then on busy days when all makeup trucks were in demand in the makeup department, the Monotype department would be handicapped. To conserve floor space and to make it possible for the Monotype operators to continue work uninterruptedly, Al Oberg, superintendent, and H. George Gilbertson, composing room machinist, designed and built three racks like the one shown in the accompanying halftone illustration.

The rack is placed near the caster, permitting the operator to take the type from the caster and place it in the cases with the least number of steps. Extensions of 4 in. and 8 in. on the middle and bottom slides respectively, permit drawing out cases far enough to allow easy access to the back of the cases. All three cases may be used simultaneously for the same type face and body, permitting replenishment of all three fonts before changing the mats.

*Composing Room Machinist, Flint (Mich.) *Journal*.



View showing three-case non-storage rack used in the composing room of the Flint (Mich.) Journal. In this composing room, the Monotype caster operators sort up each case directly as the type comes from the caster instead of filling the cases from storage boxes. This rack, which is one of several used in the Journal composing room, was designed and built by Al Oberg, superintendent and H. George Gilbertson, composing room machinist.



Diagrams showing front, side and rear elevations of three-case non-storage rack as used in composing room of Flint (Mich.) Journal. This rack can be built by any composing room machinist at a cost of about $6.00 for materials.

The rack can be built by any machinist at a cost of about $6.00 for steel, rivets, hacksaw blades and drill. After several experiments, the following dimensions were found to be satisfactory:

Height—48 in.

Width—34 in. outside.

Depth of Slides—Top, 17½ in.; center, 21½ in.; bottom, 25½ in.

Vertical Distance Between Slides—15 in., leaving 18 in. from bottom slide to floor.

Front Legs—2 in. by ¼ in. flat iron bar.

Back Legs, Slides and Front Braces—2 in. by ⅛ in. angle iron.

Braces on Sides, Back and Between Front Legs—2 in. by ⅛ in. flat bar iron.

Rivets—3/16 in. soft iron, round head. No. 6 twist drill used for rivet holes.

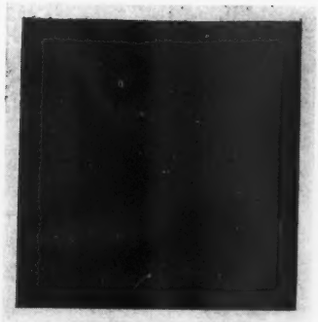
Inverted Angle Iron Plates—1 in. by ⅛ in., 2 in. long, for fastening to sides of middle and bottom slides near the outer ends to prevent the cases tipping after being withdrawn.

Paint—Hamilton Green to match furniture.

Specifications given above are for 32¼ in. by 16½ in. type cases.

The angle iron brace under the front end of the lower slide was rounded off at the corners to prevent injury.

For the larger and heavier cases, sizes 40¼ in. by 16½ in., a rack to hold two cases was built, 44 in. high and 42 in. wide, the slides being the same vertical distance apart (15 in.). By riveting a piece of flat iron, 3 in. by ⅛ in., from front to back about 4 in. from each side, this rack can be used for the shorter cases.



ANNOUNCES Vaporin

A PROCESS AND PRODUCT
ESPECIALLY ADAPTED TO THIS
AGE OF HIGH-SPEED PRINTING

Every printer should read every word of this important announcement

IMPORTANT

VAPORIN HAS PASSED ITS EXPERIMENTAL STAGE. IT HAS LONG BEEN IN SUCCESSFUL OPERATION ON REGULAR PRODUCTION JOBS. THE RESEARCH LABORATORIES HAVE BROADENED THE FIELD OF VAPORIN'S USEFULNESS EXTENDING ITS ADVANTAGES TO MANY TYPES OF PRINTING. AT PRESENT WE OFFER FOUR STANDARD VAPORIN BLACKS. VAPORIN COLORS WILL BE OFFERED FOR GENERAL DISTRIBUTION SOON. VAPORIN FOR PRACTICALLY ANY SPECIAL PURPOSE CAN BE MADE IF QUANTITIES ARE LARGE ENOUGH TO WARRANT SPECIAL FORMULATION.

Vaporin A REVOLUTIO R

For years printers have struggled with the problem of offset, with long waits to enable them to back up jobs, and with delays in getting finished press work to the bindery. Slip sheets on flat bed presses and traveling tympans on rotary presses have been considered a necessity, although they result in reduced speeds, lost press time and often less than satisfactory printing results. Practically all modern high-speed presses are capable of greater production, but this production has not been fully available, due to make-shifts introduced to compensate for ink deficiencies.

Inks called quick-drying have usually been incapable of giving a clean, sharp impression.

Such inks were merely old ink formulas doped and tortured to gain a questionable degree of faster drying until they lost the qualities demanded by printing craftsmanship.

Do Not Confuse Vaporin With Ordinary Inks

With Vaporin The Research Laboratories attacked the problem in a fundamentally different way. They set up the objective not only of quick-drying, but also of better printing.

The Vaporin process does not employ inks as the trade knows inks today. By vaporization, through the application of heat, the volatile part of the Vaporin is removed, leaving relatively dry solids on the surface of the paper. This produces a cleaner, sharper, more brilliant print. It eliminates offset, "dryback" and excessive penetration.

The Result of Research and Experience

In keeping with a rigid rule, IPI made no announcement of Vaporin until numerous pressroom tests and production runs had established the efficiency of the Vaporin process for better printing. Vaporin has been in use in several pressrooms of large printing establishments, representing widely varying conditions and types of printing and speed demands.

The Research Laboratories have worked on the production of Vaporin, a principle developed and tested years ago, until it is possible today to manufacture Vaporin on a commercial scale, resulting in more economical and better printing.

We can assure the printing industry that Vaporin will produce results long hoped for by printers and never attainable with ordinary inks alone.

What Is Vaporin?

Vaporin is our name for a new process and our trade mark for the material used by the process.

Vaporin is radically different in structure. The solvents, unlike those in ordinary inks, pass off rapidly by vaporization upon the application of heat, leaving the solids trapped and dry on top of the sheet. At ordinary pressroom temperatures, Vaporin is relatively inert and will not dry on the press.

Vaporin dries in a split second upon the application of sufficient heat, or it may be allowed to dry at moderate speed in the pile. In each case offset is eliminated. This quick-drying feature makes the Vaporin process obviously advantageous to web press printing where immediate backing up is required, and to continuous process printing where the paper must instantly pass through other fabricating steps such as folding, scoring, coating or cutting. Here are a few results of actual production runs:

A magazine cover job was put back on the press and backed up within one-half hour.

A sixteen-page magazine signature in two-colors was backed up immediately on a web perfecting press. The richness of color and sharp, legible impression were superior to anything secured under comparable conditions with old inks.

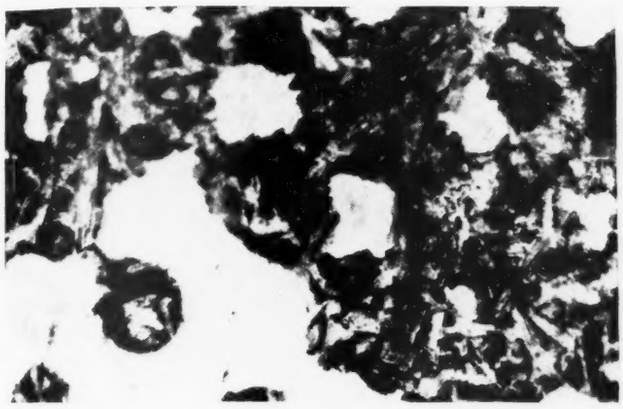
One job carrying a heavy form and printing on heavy paper ran at a speed of 270 feet a minute, another at 280 feet a minute, drying and rewinding instantly. This is in no sense a limit of the speed attainable.

A job was printed, backed up and put through the bindery three hours later.

After an 800,000 run, rollers were in perfect condition.

TRAPS DRY ON TOP OF SHEET · NO PENETRATION · NO OFFSET · NO CRIZA

IO RY PRINCIPLE IN PRINTING



ABOVE: *Untouched photomicrograph of impression with ordinary inks showing blurred half tone dots.* BELOW: *Untouched photomicrograph of impression with Vaporin, same spot on plate as above, showing clean, sharp dots.*

BELOW: *At left. Ordinary ink on a magazine run, web perfecting press. At right. Vaporin on same press. Note the sharp impression, absence of "smut sheet" blurring, greater legibility. These are untouched photomicrographs.*

Vaporin prints sharper because the paper pulls the Vaporin cleanly off the plate and the vaporizing process dissipates the volatile portion of Vaporin, leaving the solids on the surface. To quote one superintendent, "Without reservation Vaporin is the finest material with which to print from plates."

Cleaner, Richer Impression

In half tone printing the clean, sharp dot impression is superior to that secured by any type of printing inks. The same improvement is apparent in type impression. The superintendent of a large rotary pressroom said, "In all my experience I have never seen ink leave the rollers as clean or print as clean as Vaporin."

There is no penetration, no "dryback," no surface crystallization, and no skinning over. Vaporin will not jam or clog in half tone plates.

Traveling Tympans and Slip Sheets Eliminated

Since the use of Vaporin precludes the necessity of traveling tympans and slip sheets, a great saving in the cost of these papers can be effected.

Lost press time for shifting tympans is eliminated and maximum press production can be increased by the use of Vaporin.

The need for frequent wash-up is reduced. One printer who uses Vaporin said, "We do not need to wash up at noon. Vaporin will stand an hour and a half, two hours or longer without drying."

Caution: Do Not Judge Vaporin by Ordinary Ink Standards. Old Tests Useless

Vaporin is proving successful on long web press runs, but its advantages apply equally to flat bed and cylinder press printing.

Vaporin is unlike ordinary inks. Draw-down tests cannot be applied to Vaporin—its chemical struc-

E F

IZATION • SOLVENTS VAPORIZE OFF

Vaporin

HOW TO START USING VAPORIN

ture is entirely different from that of ordinary ink. There is no use giving Vaporin the ordinary tests—they just do not apply.

Vaporin and ordinary inks are not compatible and, therefore, should not be used together in cases where there is overprinting or trapping. Better results are obtained by Vaporin alone.

Remember, Vaporin is much more than a quick-drying ink. It is unlike ordinary inks and produces better press results.

How to Start Using Vaporin

While the Vaporin principle is simple in operation it nevertheless requires special consideration.

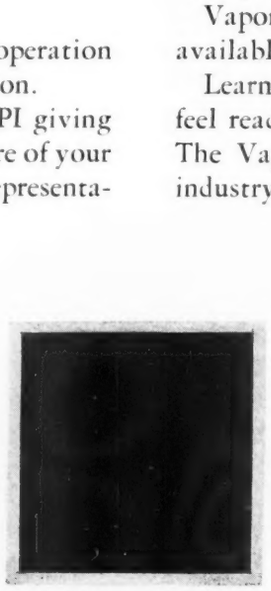
Wire, write a letter or send a card to IPI giving information about your press and the nature of your printing. State whether you would like a representative to call. The IPI service organization will reply as promptly as possible after receiving your inquiry.

Learn Complete Facts About Vaporin

Vaporin is now available for general distribution to the printing trades in four standard blacks. These Vaporin blacks meet the requirements of general catalog and publication printing on machine finished and super paper, and also of fine half tone printing on coated paper. In fact they are suitable for practically any type of paper.

Vaporin in a complete range of colors will be available soon for general distribution.

Learn the facts about Vaporin whether or not you feel ready to use this method of quality printing. The Vaporin principle will certainly change the industry. You should know all about it.



Vaporin

THE INTERNATIONAL PRINTING INK CORPORATION

ATLANTA
BALTIMORE
BATTLE CREEK
BOSTON
BUFFALO
CHICAGO
CINCINNATI
CLEVELAND
DALLAS
DENVER
DETROIT
KALAMAZOO
KANSAS CITY
LOS ANGELES
MILWAUKEE
MINNEAPOLIS
NEW ORLEANS
NEW YORK CITY
PHILADELPHIA
RICHMOND
ROCHESTER
ST. LOUIS
SAN FRANCISCO

Vaporin

It has been announced by The International Printing Ink Corporation that its research laboratories have perfected a quick self-drying ink called "Vaporin" which has been used successfully on production jobs for several months.

The following claims are made for the new product: (1) By vaporization the volatile part of Vaporin is removed, leaving relatively dry solids on the surface of the paper with consequent elimination of offset, "dryback" and excessive penetration; (2) the solvents pass off rapidly by vaporization (more rapidly upon the application of heat) leaving the solids trapped and dry on top of the sheet; (3) Vaporin dries in a split second upon the application of sufficient heat or it may be allowed to dry at moderate speed in the pile to eliminate offset; (4) at ordinary pressroom temperatures Vaporin is relatively inert and will not dry on the press; (5) draw-down tests cannot be applied to Vaporin since its chemical structure is different than conventional ink; (6) Vaporin and other inks are not strictly compatible and should not be used together where there is overprinting or trapping; (7) it is not necessary to use traveling tympans or slip sheets; (8) Vaporin will not clog in halftone plates, and (9) lost press time for shifting tympans is eliminated and maximum press production can be increased by the use of the new product.

At the present time Vaporin is available in four standard blacks to meet the requirements of general catalog and publication printing on machine-finished and super paper and fine halftone printing on coated paper. These blacks, however, are said to be suitable for practically any type of paper. Announcement by Ipi states that Vaporin in a complete range of colors is being given extensive practical tests on production runs and will be available for general distribution at an early date. Further information may be obtained from the International Printing Ink Corporation direct or in care of *Printing* EQUIPMENT *Engineer*.

Intertype Enlarges Facilities

The Intertype Corporation is increasing the capacity of its matrix department by fifty per cent, with additional space for both manufacturing and storage purposes. Additional machinery is being installed for the production of new matrix faces.

It is pointed out that the cutting of new matrices involves a large number of very exacting operations. Sixty-five distinct operations are required, on the average, for the manufacture of an ordinary Intertype matrix. For a large display matrix, about seventy-five operations are necessary. The normal length of time required to manufacture a matrix is from one to three weeks.

In order to insure accuracy, the original drawing of each matrix character is made about twelve inches high. Then a metal pattern is made from the drawing, with the characters reduced to about three inches high. This metal pattern is used in making the hardened steel die which stamps the character into the matrix.

Many of the manufacturing operations are done on automatic machinery designed specially for the purpose. The accuracy of some of the work is measured in ten-thousandths of an inch—a fraction of the thickness of a hair. Rigid inspections are necessary throughout the course of manufacture, and final inspections of the finished matrices are made under powerful magnifying glasses.

EDES PHOTO-ENGRAVING

EDES SUPERFINE QUALITY ZINC

ZINC

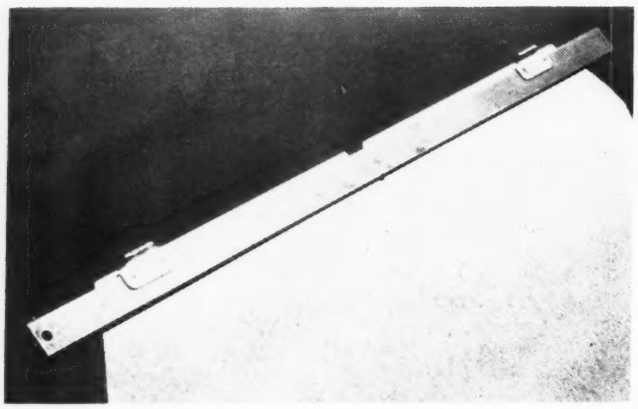
THE STANDARD FOR MORE THAN 80 YEARS

ETCHES CLEAN AND QUICK

THE EDES MANUFACTURING CO., PLYMOUTH, MASS.

Stocks Carried by the Following Representatives

John H. Heimbuecher Metals Co., 514 No. Third St., St. Louis, Mo.
Garmole Drug and Chemical Co., 119 So. Green St., Chicago, Ill.
E. H. Walker Supply Co., Printcraft Bldg., Washington, D. C.
Selby Mohr, 883 Mission St., San Francisco, Cal.
C. S. Illingworth, 49 Springville Avenue, Buffalo, New York
Thompson-Hayward Chemical Co., 2228 Blake St., Denver, Colo.
Thompson-Hayward Chemical Co., 909-2nd St. So., Minneapolis, Minn.
Metzger Photo Supply Co., 1091 So. Main St., Akron, Ohio
G. C. Dom Supply Co., 125 East Pearl St., Cincinnati, Ohio



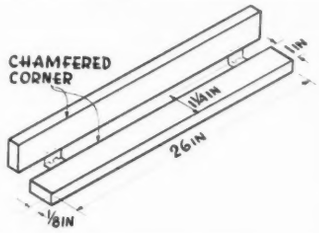
View of folding clamp which is used in a composing room to fold Vandercook power page proof press cylinder manila packing sheets 1¼ in. back from the gripper edge at an angle of 90 deg. so the sheets will not bulge or bolster opposite the gripper bar.

Cylinder Packing Top Sheet Creaser

On the Vandercook power page proof press the cylinder is dressed with oiled manila top sheet, one end of which clamps under the gripper bar and the other end is engaged by a reel to draw the top sheet taut.

Since the under sheets and top sheet are delivered flat when received from the maker it is desirable to fold them 1¼ in. back from the leading or gripper edge to a 90 deg. angle so the sheets will not bulge or bolster opposite the gripper bar. The preliminary fold 1¼ in. back from the leading edge will insure a smooth lay against the cylinder. Since the under sheets are shorter in length than the top sheet and do not wind with the reel, it is too much to expect that the single top sheet can be pulled tight enough around the cylinder to smooth out the bulge in the under sheets opposite gripper bar.

In the illustrations are shown a simple creasing device for folding over the gripper bar ends of the cylinder packing. It is made from two sections of c.r. steel, ⅛ in. thick, by 1 in. wide, by 26 in. long. The two strips are hinged so that when a packing sheet is pushed against the hinges, the fold can be made 1¼ in. from the edge of the sheet without measuring each sheet separately and folding on the line. When a sheet has been inserted in the folding device the device is given a 90 deg. turn from horizontal. The inside edges of the folding clamp are slightly chamfered to avoid obtaining too sharp a corner when folding the manila packing sheets.



Perspective diagram to show measurements for making proof press cylinder packing creaser. The right angle bend in the packing sheets assures avoidance of a bulge or bolster in the packing opposite the gripper bar.

Typographic Camera

An illustrated bulletin describing a new camera for line, halftone and color process work is available to mechanical executives either from Lanston Monotype Machine Company or in care of *Printing* Equipment *Engineer*. Has graduated vernier steel scale on camera for positioning lensboard and copyboard to secure maximum sharpness in focusing.

DEPTH and DETAIL

FLEX dry mats have a surface which takes and holds a perfect impression of screen dots and type. Other characteristics are uniform gauge and uniform shrink —low-pressure molding and low-temperature casting. Try FLEX dry mats. Samples will be sent to you, without charge or obligation, on request.

FLEX DRY MATS

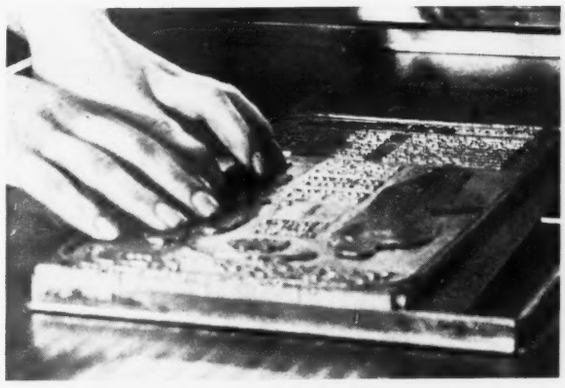
Trying something new and different often leads to better results. Trying FLEX dry mats involves no bother, no obligation, and leads to good plates and good presswork.

FLEXIDEAL DRY MAT COMPANY, 21 WEST STREET, NEW YORK

Simple Method for Fastening Cuts to Bases

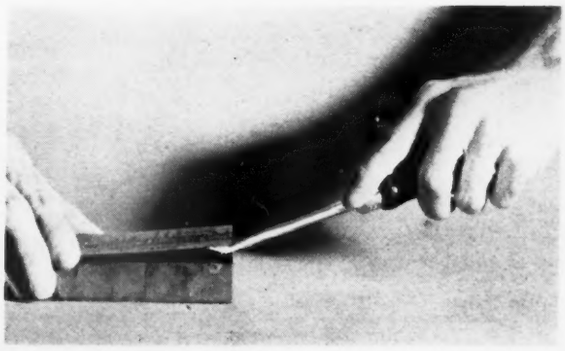
This is a tube of Zink Cut Cement supported by its Stand-A-Lone Holder. Gentle finger pressure controls the amount of cement which is applied when cut is to be cemented to its base. A slight turn of the wing handle squeezes additional cement into the unused part of the tube. No muss—no waste.

Stand-A-Lone Holders may be bought separately at 2 for 25c or $1.00 per dozen.



with a slightly rotating motion of the fingers, the cut is pressed down firmly to spread the cement to **film thickness.** Booth's Printers' Zink Cut Cement, when used sparingly, holds cuts to bases with the strength of a tiger's paw.

Here the cement is being applied to the back of one of the twelve cuts in this form. By using slight finger pressure upon the tube ,small patches of the cement are applied in several places, and



If cuts are to be removed from bases, a 10c screwdriver bent to the shape shown here does the job effectively. If it is desired to clean the cement from the cut, a non-inflammable solvent can be made by mixing in the desired quantity, two-thirds by volume of carbon tetrachloride with one-third by volume of benzol. Immerse the cut in the solution and agitate with a bristle brush or wipe the cut with a cloth saturated in the solution.

•

50 cents per large tube; $5.00 per dozen tubes;
$4.00 per dozen tubes in gross lots.

•

The E. A. BOOTH RUBBER COMPANY

364 Rockefeller Bldg. Cleveland, Ohio

The United States Government Printing Office

Installed, at an earlier date, two Lindbladh Duplex "L" machines designed for the universal production of all forms of Striker work, Loose-leaf and Columnar pad ruling—in which faint-lining is done on the **first** machine and down-lining is done on the **second** machine—in the approved and logical manner of ruling paper. Likewise in this exclusive Duplex equipment striker functions are affected, simultaneously, both in the cross-ruling and down-lining—at one operation.

Government Printing Office Repeats

So compelling has been the performance of the Lindbladh "L" machines that the Government Printing Office has recently repeated by making an installation of two Lindbladh, Single-style striker machines in the latest straight-line design, each equipped with a Lindbladh Sheet-feeding device in which the sheets pass unimpeded and in a straight line from Feeder to Lay-boy. No lower-cloth and no under-trappings.

Register and Striking a Paramount Issue

The Register incident to Government press work is so accurate that the demand is insistent for a corresponding degree of accuracy in Register and Striking for all ruled forms coming to the presses. Lindbladh's superb performance is in complete conformity with these commanding requirements.

The Lindbladh machine—both in the Single and Duplex "L" models—presents a line of pen-ruling equipment unexcelled in rate of production and incomparable in accuracy.

Literature Upon Request

The

Lindbladh Corporation

40 Court Street, Boston, Mass.

G.P.O.

(*Continued from Page 11*)

The establishment of temporary agencies and bureaus has naturally resulted in the inauguration of many varied emergency activities. This in turn has resulted in a tremendous increase in the demands made upon the bindery. Orders for pamphlets and circulars, ranging from a few hundred to two hundred million copies, have been the rule rather than the exception—all of which are of an emergency or rush nature and must be folded, stitched, wrapped, and dispatched to proper destinations without delay.

Among the principal annual jobs handled by the bindery are the binding of 250,000 copies of the *Agricultural Year Book*, which require 110,000 pounds of binder's boards and 35,000 yards of book cloth; 6,600,000 pamphlet copies of *Farmers' Bulletins;* 83,000 copies of the *Postal Guide;* 360,000 copies of annual reports; and 35,000 to 75,000 volumes of the *Congressional Record*.

Average Daily Production

Type, ems (units) set	10,000,000
Book pages, copies printed	13,000,000
Presswork, actual impressions	4,000,000
Postal cards printed	7,600,000
Paper sheets machine folded	1,500,000
Book signatures (sections) gathered	500,000
Publications distributed, copies	275,000
All job work, copies	17,300,000
Charges for work done	$65,000
Compensation of employees	$43,000

The *Congressional Directory*, two regular editions of which are produced for each session of Congress, in addition to a vest-pocket edition, is another of the many regular publications with which the bindery must cope. A recent edition of 30,000 was produced in record time.

The bindery also operates 2 large machines for wrapping copies of the *Congressional Record* and other publications in addressed wrappers and conveying them into mail sacks. As the sacks are filled and labeled, they are dropped through a chute onto a continuous belt 1,000 feet in length which automatically conveys them through a tunnel to the City Post Office at the rate of 360 sacks an hour.

De luxe or art binding is not included in the regular activities of the Government bindery, still many specimens of this fine craftsmanship formed part of the

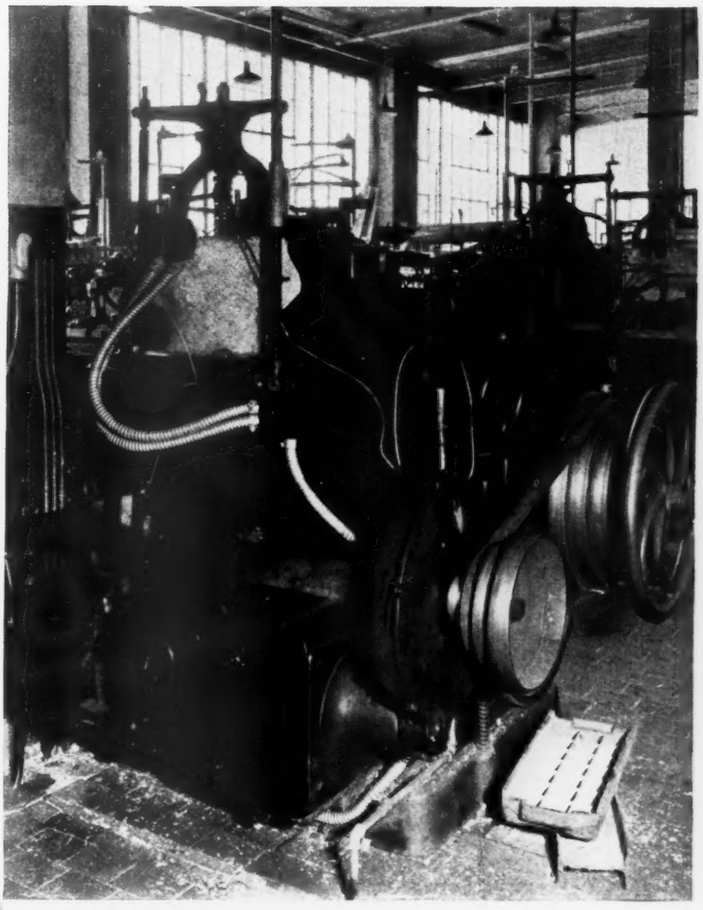
View of Job Composing Section of Government Printing Office.

World's Largest Type Founder Selects G-E ELECTRIC HEAT for World's Largest Type Foundry

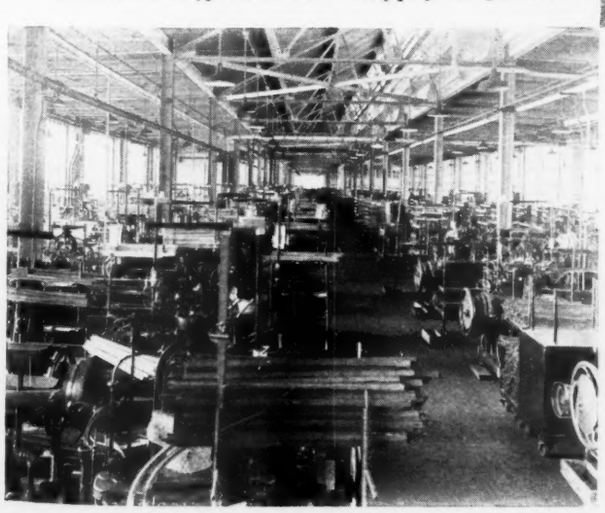
American Type Founders equips 250 casting machines with electric heat—Obtains higher-quality products at lower over-all costs

ONLY after exhaustive tests on the many types of available heating equipment did the American Type Founders Company select G-E electric heat for its 250 casting machines. Electric heat was chosen because it offered the best assurance that the type would be as nearly perfect as possible, not only in quality, size, and ability to stand long usage, but in artistry as well.

The closely maintained temperature and day-in and day-out dependability of G-E electric heat in this plant are aiding in maintaining and improving the quality of the product.



This group of 250 machines was equipped with G-E electric heat because electric heat offered the best assurance that the type would be as nearly perfect as possible



This casting machine is one of the 250 equipped with Calrod heating units and automatic control by American Type Founders to assure a high-quality product

You, too, can easily obtain the advantages of G-E electric heat. If your present pots are in good condition, simply slip in some G-E Calrod heating units and install an automatic-control device. Or, General Electric offers you a complete line of modern electric melting pots. For complete information, address General Electric, Dept. 6A-201, Schenectady, N. Y.

160-29

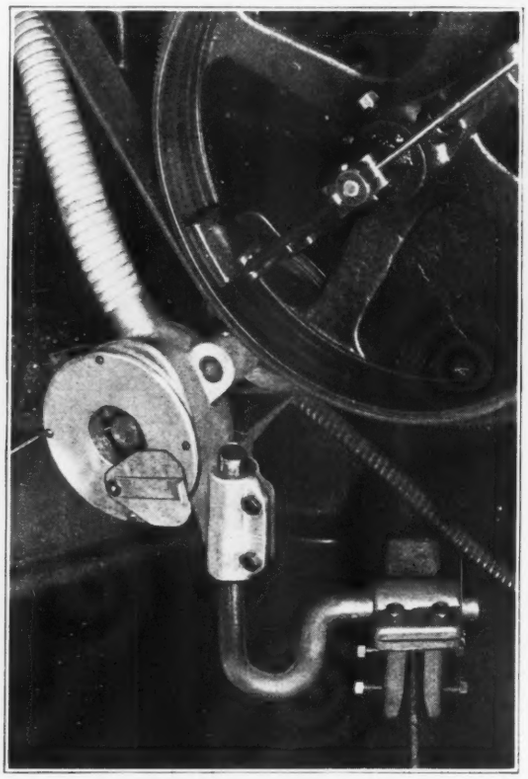
GENERAL ELECTRIC

ANNOUNCING

AIR COOLING

for

LINOTYPE and INTERTYPE MOLDS



Have you ever counted the cost of faulty slug production . . . or of lowered machine output? A check-up will astonish you!

Particularly, when ten point or upward is cast, **Mold Cooling** is essential.

The Lino Air Flow Is Now Available To You At a Low Cost

NO EXTRA MOTOR—EASILY ATTACHED—
NOISELESS — NO MAINTENANCE COST.

Send for Descriptive Circular

BELTS

Ace round and flat belts are the original cord-rubber belts—and still the best. They are **only ones** that carry an unconditional warranty of at least a year's service.

TRADE ★ MARK

Linotype Parts Corporation

NEW YORK — 203 Lafayette Street
KANSAS CITY — 314 West 10th Street
CHICAGO: 318 West Randolph Street
LOS ANGELES: 1520 Georgia Street

Government Printing Office exhibit at the Century of Progress Exposition, where it was the object of much favorable comment.

The Binding Division has a total of 1,408 employees.

Tests and Technical Control

A Division of Tests and Technical Control has a fully equipped laboratory in which are prepared technical specifications for paper and other printing materials;

View of section in Plate-making Division (Photoengraving section) Government Printing Office. One of the cameras is equipped with an automatic focusing device.

also the testing of all purchased materials to maintain standards of quality.

This Division is equipped with a most complete laboratory which is devoted exclusively to the service of printing and related industries.

Ink and Roller Sections

The Government Printing Office operates separate sections for the making of printing inks, press rollers, and bindery glues for the use of the Office. Approximately 285,000 pounds of printing inks were made in 1935.

Metal Section

Another section is devoted to the remelting and reconditioning of type metals and plates. The metal section, which has been entirely mechanized with new equipment especially designed by this Office to minimize manual labor, remelts and corrects with alloys an average of 14 tons daily of type and plate metal for further use in typecasting and platemaking machines.

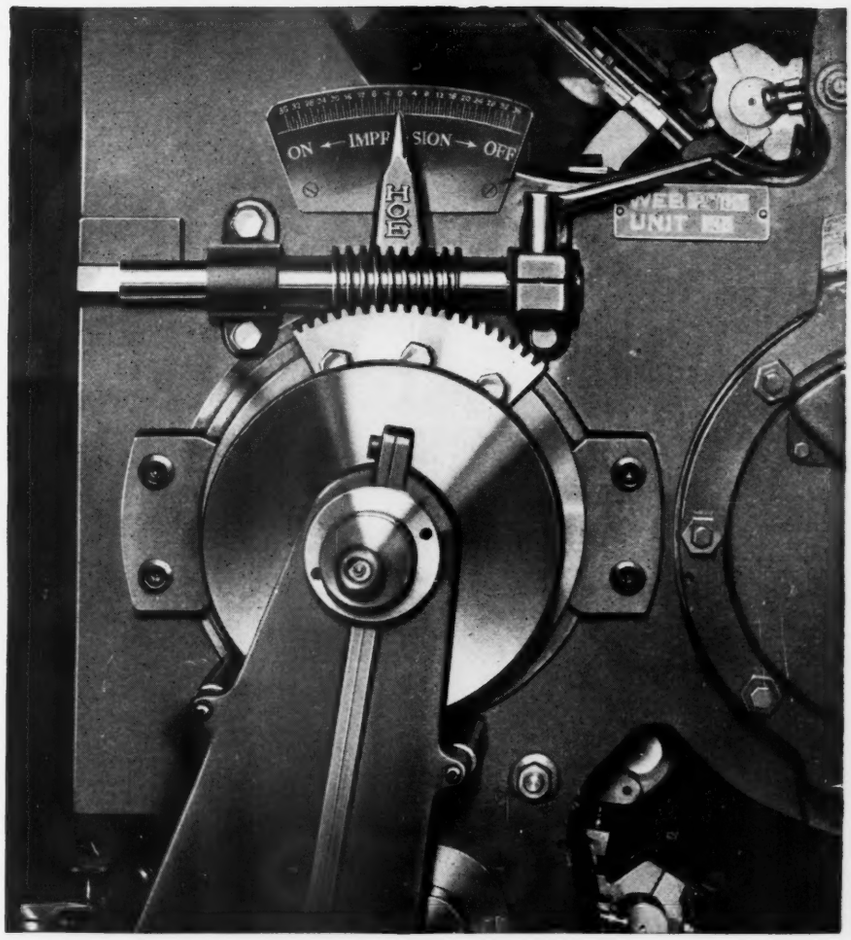
Continued on Page 38

View of part of the Bookbinding Division, Government Printing Office. In this view are shown book-sewing machines, forwarding and finishing operations.

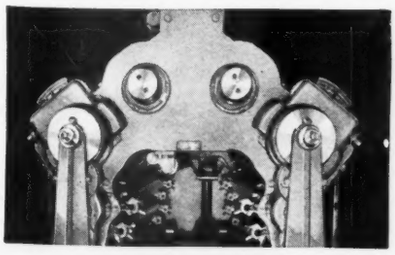
PERFECTED

by

HOE



. . . the Visual Micrometer Impression Adjustment



Both the Arched and Vertical Type Units are equipped with this important and exclusive mechanism.

With a micrometer gauge accurately calibrated in thousandths of an inch . . . conveniently located at each end of the cylinder . . . in a safe position outside the press . . . all guesswork is eliminated when setting impression on Hoe Super-Production Presses. The pressman in charge can at all times readily see the precise amount of impression carried. The micrometer gauge permits the setting of all cylinders in accurate parallelism . . . a necessity for high press speed.

A simple turn of a socket wrench alters the impression when desired. When satisfactorily set the impression adjustment is locked by the turn of a convenient handle and will not vary until unlocked for a new adjustment.

It is the only device of its kind that permits accurate increase or decrease of impression while the press is in operation.

Added to the long list of printing improvements "perfected by Hoe" the visual micrometer gauge assures finer printing with fewer press delays.

R. HOE & Co., Inc.

• General Offices •

910 East 138th Street
(at East River)

• New York City •

BOSTON SAN FRANCISCO CHICAGO

Postal Card Section, Press Division, Government Printing Office. Three presses each produce 6400 postal cards per minute, cut and counted in packs of 50. The presses will also deliver postal cards in sheets of 40 cards each.

G.P.O.

(*Continued from Page 36*)

Stores and Delivery

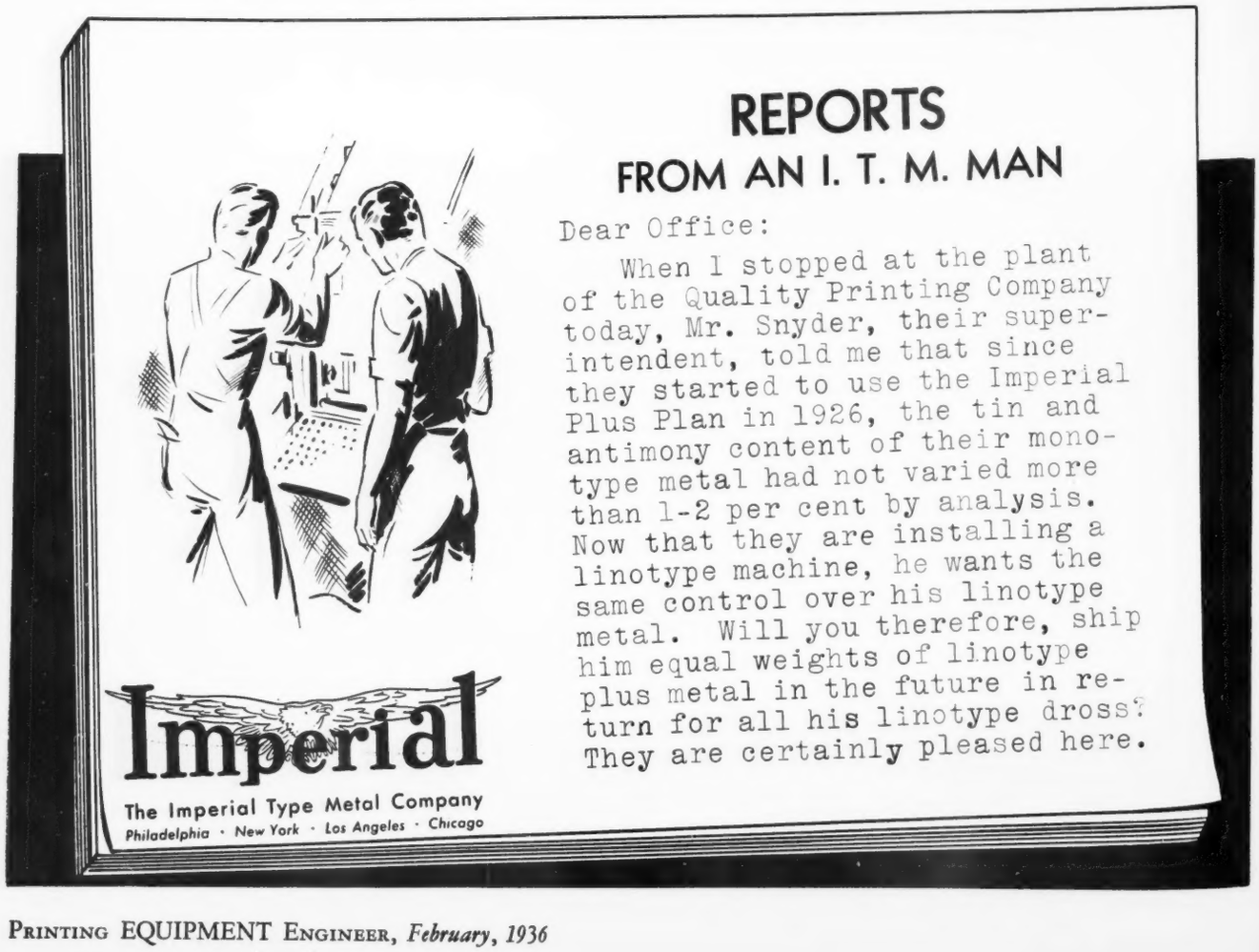
The Stores Division handles more than 70,000,000 pounds of paper annually in the work of the Government Printing Office in addition to thousands of other items of materials and supplies. The general stores include 20,000 different items. More than 100,000 orders on the store-keepers for paper and materials are filled each year.

Paper and all heavy materials are handled with power-lift trucks, electric-crane trucks, tiering machines, and tractors hauling trains of trailers. Loaded motor trucks are delivered direct to the basement by the use of elevators or inclined driveway to facilitate handling deliveries with a traveling crane or continuous conveyor. A fleet of 29 motor trucks, ranging from 1- to 5½-ton capacity, haul and distribute an average of 150,000,000 pounds of materials and products annually. In addition, annual deliveries to this office total around 2,000,000 pounds of paper by commercial trucks and 125 carloads of miscellaneous materials. The Store Division has 155 employees.

Maintenance Division

This Division operates the following workshops, which have modern machines and equipment: Machine, electrical, carpenter, cabinetmaking, pipe, sheet-metal, blacksmith, automobile, paint, and boxmaking shops. The Division operates all equipment for electric power conversion and distribution, emergency electric-generating equipment, heating, ventilating, lighting, refrigerating, water-pumping, and laundry equipment; compressed-air service, signal systems, conveyor systems, and 30 elevators ranging in capacity up to 32,000 pounds. It handles all problems of an engineering character, drafting and specifications for mechanical and electrical equipment, building alterations and construction work, and maintains machinery, equipment, and buildings. It designs and builds special machines and equipment to meet special needs for which commercial equipment is not available.

The Maintenance Division has 376 employees.


REPORTS
FROM AN I. T. M. MAN
Dear Office:
When I stopped at the plant of the Quality Printing Company today, Mr. Snyder, their superintendent, told me that since they started to use the Imperial Plus Plan in 1926, the tin and antimony content of their monotype metal had not varied more than 1-2 per cent by analysis. Now that they are installing a linotype machine, he wants the same control over his linotype metal. Will you therefore, ship him equal weights of linotype plus metal in the future in return for all his linotype dross? They are certainly pleased here.
Imperial
The Imperial Type Metal Company
Philadelphia · New York · Los Angeles · Chicago

Smart Sleuthing Leads STREET & SMITH to GOODRICH PRINTERS' ROLLERS

IT IS only natural that when Street & Smith Publications, Inc., New York, N. Y., one of the leading publishers of detective and thriller magazines, decided to add to their press equipment they should resort to the methods of the modern sleuth in combing the entire field for improvements.

One clue led them to investigate Goodrich Printers' Rollers. Not only did they cross-examine Goodrich users but they subjected these rollers to the third degree by testing them on old presses. So convincing was this test that they specified Goodrich Printers' Rollers 100% on their new Hoe presses.

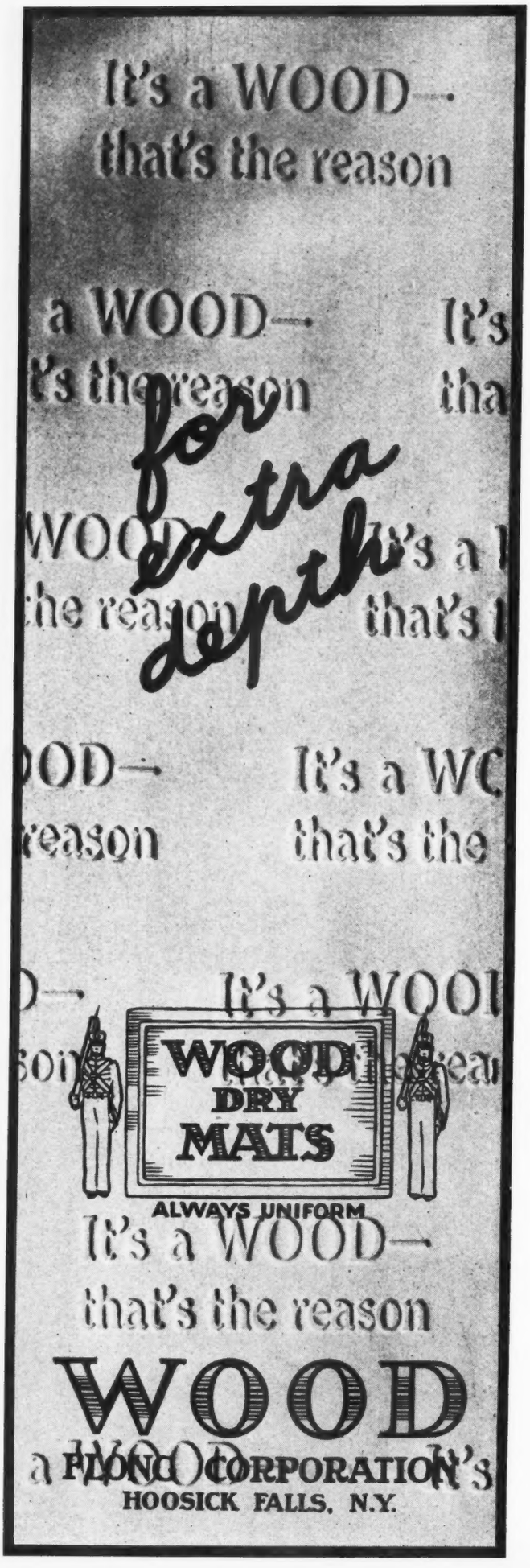
There is no mystery concerning the universal and increasing demand for Goodrich Printers' Rollers. A test on your own presses or a check with Goodrich users quickly reveals advantages that appeal to any cost or production-minded individual whether he be mechanical superintendent, business manager or publisher.

Costly, time-consuming shut-downs for resetting and washup are a thing of the past where Goodrich Printers' Rollers are used. Temperature changes have no effect on them and they will not melt. Extra years of service can be had by regrinding. In addition to lower costs you obtain better printing. With the use of these rollers your magazine or paper will take on a new freshness and sparkle which is usually reflected in terms of increased advertising and circulation.

For prices and full information including names of prominent users near you, write—

NILES & NELSON, INC., EXCLUSIVE DISTRIBUTORS
75 West Street, New York 400 West Madison Street, Chicago, Ill.

Goodrich *Printers'* Rollers



Pony Pete Writes Tommy

Dear Tommy:

I believe you asked me in your last letter what method I used in adjusting my mat roller. Now, this is something which has to be done so seldom that for a moment I was at a loss to answer your query. I have heard of all kinds of methods and suppose a common one is to examine the mat and determine by looking at it just which side should be raised or lowered. Now, this may have been all right a few years ago, but I believe stereotypers are using more accurate methods nowadays so I will tell you what I did the last time I adjusted mine. I took three type-high bars from my flat-casting box and placed them on the bed of the roller. Then I put the molding cushion on top of the bars, after which the machine was run ahead and stopped with the roller in dead-center position. The adjustment is now ready to be made. Of course, you have a gauge to get the "feel." If you don't have a type-high gauge, a nonpareil slug, providing it is type high, will just about fill the bill. The idea is to adjust the roller height exactly the same on each end. After reading about this method you might say: "Why not use a chase or a made-up page?" The only objection to a chase or page form is that either one puts a strain on the motor of the roller when starting on dead load, if the roller has been stopped over the center of the form. In any event, you can't make the roller adjustment with the load on the roller. It is necessary to run it back and forth several times to get the proper setting. The flat casting box bars will provide enough load to take up any wear in the bearings, and make up for any differential in case the top roller is suspended on springs as is the case with some makes. You will find this method O. K., I am sure.

PONY PETE.

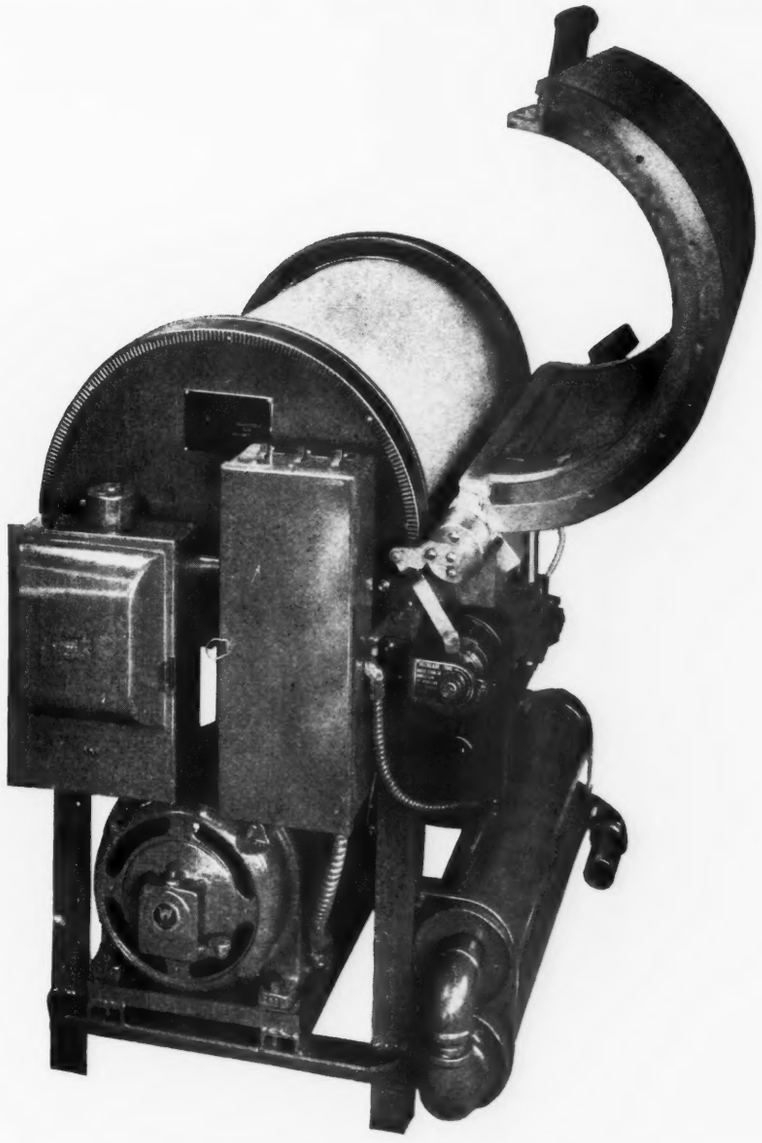
Intertype Egmont Medium

The completion of Intertype Egmont Medium with Italic and Small Caps has been announced by Intertype Corporation. Examples of the fourteen point size are shown below:

This paragraph is set in
14 Pt. Intertype Egmont
Medium *with Italic* 123

Egmont Medium, like its companion face Egmont Light, is now ready in sizes 8 to 24 point. Intertype reports that considerable demand has been made for Egmont Bold which will be brought out next Spring.

PROGRESS HAS SPRUNG PRIMARILY



from Science and Invention. **The STAHI AUTOFORMER** has been the enthusiastic interest of **Stereotypers and Pressmen** — because they learned the worth-whileness of establishing standard practice in **Dry-mat Routine** through **The STAHI AUTOFORMER,** with **28 Fundamental Advancements. Only a Stahi can give protection** against **Distorted Dry-mat Casting Levels** — assuring **Quality Printing.** The very latest **1936 AUTOFORMER** is equipped with many new improvements.

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AGENCIES:

GOSS PRINTING PRESS COMPANY, Chicago, New York, San Francisco
CERTIFIED DRY MAT CORPORATION, 342 Madison Avenue, New York
DUPLEX PRINTING PRESS COMPANY, Battle Creek, Michigan
WOOD FLONG CORPORATION, Hoosick Falls, New York
BURGESS CELLULOSE COMPANY, Freeport, Illinois
R. HOE & COMPANY, New York, Boston, Chicago, San Francisco

Foreign Agencies:

GOSS PRINTING PRESS COMPANY of London, England
A. M. CARNEIRO & COMPANY of London, England
TORONTO TYPE FOUNDRY COMPANY, Ltd., Toronto, Montreal, Winnipeg, Canada

Enlarges Factory

Night work did not sufficiently increase the manufacturing capacity of the Vandercook & Sons, Inc., factory to meet the demand for modern proof presses.

An addition to the plant at 900 North Kilpatrick Avenue, Chicago, has been completed recently. This allows space for the latest model production equipment which has been installed. Plant capacity has been increased considerably.

More men are employed at the Vandercook factory than ever before in the history of the company.

Ballew Travels Oklahoma

William P. ("Bill") Ballew, has joined the American Type Founders' Dallas Branch, to travel in Oklahoma.

ATF Notes

Foreign fields are being rapidly developed by American Type Founders. Export volume has increased to nine times to what it was two years ago. Harry W. Alexander, General Sales Manager, has been abroad on two trips, and in early January returned from Mexico. George Grebe, Export Manager, has traveled rather widely in Canada.

Domestic sales of ATF for calendar year 1935 increased 60% over 1933 when new management took over affairs. Sales for December 1935 over December 1933 are up 80%.

Mr. Alexander was a recent speaker at the Southwestern Salesmen's Convention at Fort Worth, Tex., where more than a thousand executives and men of all classes of trade met under the auspices of the Chamber of Commerce.

The Market Research department of American Type Founders, organized especially for the purpose of initiating and encouraging the development of new processes, methods, machinery, equipment and general printing merchandise, investigating new products and analyzing the market for such products is now headed by Fred A. Hacker.

Benjamin H. Wiley, nationally known typographer of Springfield, Ill., has recently been appointed foreman of the Specimen Composing Room of American Type Founders, Elizabeth, N. J. He assumed his new duties at Elizabeth on January 6.

As a means of maintaining direct contact with trends and conditions throughout the printing industry, T. R. Jones, President of American Type Founders, has now extended his recent series of trips to the Pacific Coast Area. Following a three day stop-over at Los Angeles from Janiary 5th to January 8th Mr. Jones plans similar visits at San Francisco, Portland, Seattle and Denver.

MIRACLE INK ? *Almost!*

WHEN you *standardize on African Black* you can print with perfect uniformity and dependability on egg shell book, old style, antique or other rough paper stocks . . . on super, machine finish or similar hard surface papers . . . or on cheaper grades of m.f. book paper or other stocks that require a thinner body ink . . . Made in three body consistencies, heavy, medium and soft, either medium or quick drying — easily adapted to a variety of jobs, presses, or unusual temperature or atmospheric conditions! . . . *A new folder on African Black is just off the press. Send for your copy.*

African Black

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World's Largest Manufacturer of Newspaper Black and Colors

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BRANCHES — Boston, New York, Philadelphia, Detroit, Chicago, St. Louis, Minneapolis, Fort Worth, Los Angeles, San Francisco, Seattle

Installs True-Fitting Italic Matrices

Kurt Volk, advertising typographer of New York, has installed two Model 26 mixer Linotypes with self-quadders and 74 three-quarter length main magazines and 74 auxiliaries. The lower-case characters of all italic fonts in the Volk Linotype equipment are in the form of one-letter matrices to provide true fitting of all characters; small capitals are available on separate matrices, and all fonts are complemented with logotypes for closer fitting of paired characters. Both composing machines are equipped with extra-thin spacebands and with both brass and steel thin spaces.

Salmon Announces Changes

Two recent changes in mechanical departments of The Grand Rapids (Mich.) *Hearld* have been announced by Mechanical Superintendent Frank J. Salmon. George Julien, journeyman stereotyper on the paper for more than 10 years, has been elevated to the foremanship of the department, and Walter M. Streby of Canton, Ohio, has been placed in charge of the pressroom.

Predicts Increasing Air-Conditioned Plants

Exacting demands by the users of paper and pulp products for materials properly conditioned for use in printing or processing presage far-reaching construction activity in these industries in 1936, according to George A. Bryant, Jr., executive vice president of The Austin Company.

"The past year has witnessed the application of air-conditioning in a number of new warehouses for the storage of paper," Mr. Bryant said. "Competition for their business is bound to result in the extension of air-conditioning among other producers of carefully graded stock.

"Appreciation of the importance of properly conditioned paper among printers has been accompanied by increasing consciousness of the need for controlled conditions in printing plants themselves.

"The progress in color printing and growing use of offset methods makes uniformity of graphic production increasingly difficult in the absence of perfect temperature and humidity controls. These trends would indicate that printing plants and paper storage may become the first completely air-conditioned fields in industry."

Complete National Organization

At a special meeting of Charter Members, held January 9th at the Biltmore Hotel, New York, the National Federation of Sales Executives completed its organization. Officers and directors were elected and a Constitution was adopted.

The president is President Raymond Bill, of the National Conference of Business Paper Editors. Harry W. Alexander, General Sales Manager, American Type Founders, is a director.

Most of the directors are presidents of local sales managers clubs throughout the country. A selected few individual national sales managers are included.

The first annual convention will be held in Chicago in June 1936.

BURGESS CHROME MATS

If your paper doesn't look as well as you think it should . . .

If you are using too much ink . . .

If you are losing too much lineage through mat shrinkage . . .

If your stereotype costs seem too high for the results achieved . . .

Don't hesitate. Call in a Burgess Representative.

There's no obligation and he is trained to help "lick" your troubles.

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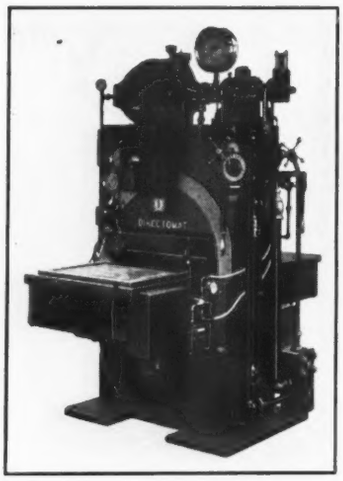

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Hydraulic Matrix Press

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Any of these presses, in daily operation in leading plants in twenty cities, will at once convince you of their unmatched ability in hot or cold matrix moulding.

DIRECTOMATS are now in use for daily black and white newspaper forms; unmatched newspaper color work; magazine and book work; sales forms; and a wide variety of commercial work requiring both hot and cold moulding.

No company operating a stereotype department can afford to ignore the contributions of the DIRECTOMAT to such work. To do so is to ignore the means of outstepping all competition in the speed and excellence of mat production made possible by this modern equipment.

Further particulars will be supplied or a demonstration in any principal city can be arranged at your convenience, without obligation.

***Certain of these presses are also used for lead, wax and bakelite moulding and vulcanizing rubber printing plates.**

Lake Erie Stereotype Equipment Company

Division of Lake Erie Engineering Corporation, Buffalo, N. Y.
KENMORE STATION, BUFFALO, N. Y.

New Sales Agents

Officials of the Seybold Machine Company, Dayton, Ohio, a division of the Harris-Seybold-Potter Company, announce appointment of the Charles A. Strellinger Company, 149 Larned Street, East, Detroit, Mich., as exclusive sales agents in the southern peninsula of Michigan and Lucas County, Ohio, for Wright Drilling, Punching and Round Cornering machines.

Not a Divided Word

Joseph Richard Snavely issued recently a 254 page book entitled "Milton S. Hershey—Builder" which is the story of Hershey and the chocolate manufacturer.

The book is unique in that Mr. Snavely wrote the volume, set it in type and printed it himself. The book is different from almost any other, in that there is not a word in the text that is divided at the end of a line. Every word is complete on each line.

Gage Speaks in South

Harry L. Gage, vice president in charge of sales with the Mergenthaler Linotype Company, talked before the Rotary Club of Chattanooga, Tenn., January 16, on "The Power of Print," and on January 24 spoke on "Making Better Newspapers," at the institute of the North Carolina Press Association at Chapel Hill, N. C.

Bennett Talks to Craftsmen

Paul A. Bennett of the advertising department of the Mergenthaler Linotype Company and conductor of the "Books and Bookmakers" department in The Linotype *News*, spoke on "Book Typography" before the Boston Club of Printing House Craftsmen Thursday evening, January 23.

January 29 he talked on "Advertising Typography" before the Utica District Club of Printing House Craftsmen, and was scheduled to address the Albany Club of Craftsmen February 6.

Patent Papers:

Printed copies of patents are furnished by the United States Patent Office at 10 cents each. Address the Commissioner of Patents, Washington, D.C., and enclose 10 cents for each patent paper wanted.

Patents

Granted for Dampening Plate Cylinders of Lithographic Presses

DECEMBER-JANUARY

Bookbinding:

2,024,959. BOOKBINDING MACHINE. Harley C. Alger, Chicago, Ill., assignor to R. R. Donnelley & Sons Co., Chicago, Ill., a corporation of Illinois. Application June 24, 1932, Serial No. 619,148. 6 Claims. (Cl. 112—21.)

1. A book-stitching machine comprising a support for the book to be stitched, a positioning member for engagement by the back edge of the book, the positioning member having a forward portion spaced from the support to permit passage of a member of the book extending rearwardly from the back edge of the book, and means for stitching the book.

6. A book-stitching machine comprising a support for the book to be stitched, a positioning member for engagement by the back edge of the book, the positioning member having a forward portion spaced from the support to permit passage of a member of the book extending rearwardly from the back edge of the book, means for forming holes in the book, means for stitching through the holes, and means for applying adhesive to a face of the book at the stitching to anchor the stitching, the positioning member extending substantially continuously between the stitching and adhesive-applying means.

2,025,527. BOOK SIGNATURE FEED. Carl Schramm, North Coventry, Conn., assignor to The Smyth Manuracturing Company, Hartford, Conn., a corporation of Connecticut. Application July 26, 1934, Serial No. 737,049. 14 Claims. (Cl. 270—55.)

1. Apparatus for feeding book signatures which comprises, a support for a pile of signatures, means which draws down the folded edge of the bottom signature, a rotatable cylinder with means which grasps the drawn-down edge and pulls the signature from beneath the pile and carries it into a substantially vertical position, means which grips the folded edge and separates the signature from the cylinder and retains it vertical, and oscillatory suction means which moves against the sides of the signature and draws it from the gripping means and opens and drops it upon a support.

2,027,105. MECHANISM FOR SEPARATING THE BOOKS OF AN INTERCONNECTED BOOK-PAD. Oscar Kleinschmit and Oskar Muller, Leipzig-Plagwitz, Germany, assignors to Gebruder Brehmer, Leipzig-Plagwitz, Germany, a limited partnership of Germany. Application October 21, 1931, Serial No. 570,246. In Germany November 25, 1930. 27 Claims. (Cl. 112—21.)

27. A book-binding machine for producing a continuously stitched multi-book block each book of which has attached thereto at least one backing strip which is free of the adjacent books, comprising a stitching head, means for guiding a continuous backing strip into a position to be stitched, a swinging sheet carrier for bringing the closed edge of a folded sheet into a position to have stitches inserted into the closed edge by the stitching head and thereby be attached to the backing strip alongside of a previously attached sheet in book formation, and means for mechanically severing the backing strip between groups of assembled stitched sheets to form individual books.

Composing Machines:

2,025,683. MATRIX COMPOSING STICK. Herman R. Freund, Brooklyn, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application February 27, 1934, Serial No. 713,231. In Germany February 19, 1934. 16 Claims. (Cl. 199—49.)

1. A matrix line composing stick comprising a base portion to cooperate with the sides and matrices and the body portions of spacebands, and an extended portion projecting beyond the base portion in a plane above that of the latter to cooperate with and support the long wedge members of spacebands.

2,025,694. MATRIX FOR TYPOGRAPHICAL MACHINES. Bernhardt Smyle, Ozone Park, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application October 25, 1934, Serial No. 749,972. 21 Claims. (Cl. 199—66.)

1. A matrix for slug casting machines having a body portion the side faces of which are inclined at one edge for a portion of the front to rear depth of the matrix and vertical at the other edge for another portion of the front to rear depth of the matrix.

Feeding, Folding, Delivery:

2,024,140. SHEET GRIPPING DEVICE. Frank R. Belluche, Racine, Wis., assignor to Christensen Machine Company, Racine, Wis., a corporation of Wisconsin. Application April 23, 1934, Serial No. 721,921. 24 Claims. (Cl. 271—79.)

1. A sheet gripping device comprising, a plurality of telescoped relatively rotatable tubes, complementary hingedly connected movable and stationary gripping jaws forming a loop about the tubes, detachable means for securing the stationary jaw to the outer tube to detachably mount the assembled gripping jaws on the outer tube and means to open the jaws upon relative rotation of the tubes.

2,024,258. FOLDING ROLLER FOR PRINTING MACHINE FOLDERS. John R. Tomlin, Alexandria, Va., and Harry V. Ball, Concord, Mass., assignors to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application June 5, 1933, Serial No. 674,440. 10 Claims. (Cl. 270—77.)

1. A folding roller for use in printing machine folders, having a section comprising an inner shell secured to the folding roller, an outer shell spaced from the inner shell and positioned concentrically thereto, and yieldable material interposed between the shells and securely fastened to each shell to provide a composite yieldable annular member.

2,025,119. DELIVERY MECHANISM FOR PRINTING MACHINES. Joseph E. Meyer, Jackson Heights, N. Y., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application July 14, 1933, Serial No. 680,395. 10 Claims. (Cl. 271—87.)

1. In a packer box delivery mechanism for a printing machine, a conveyor adapted to support delivered products, a stop means arranged to engage one face of each product to prevent the movement of each product momentarily, means adapted to press the opposite face of each product to advance the product beyond the stop means, and abutment means for the products movable with the conveyor, the abutment means having a manually operable locking mechanism, whereby it may be secured to the conveyor.

2,205,481. SHEET DELIVERY DEVICE FOR CYLINDER PRINTING PRESSES. Rudolf Stussi, Glarus, Switzerland, assignor to Druckmaschinen Aktiengesellschaft, Glarus, Switzerland. Application January 31, 1934, Serial No. 709,208. In Germany February 3, 1933. 1 Claim. (Cl. 271—79.)

A sheet delivery device for cylinder printing presses, comprising, in combination with two endless chains, means for driving the chains, grippers connected to the chains and adapted to seize a printed sheet, pivots on the chains and projecting inwardly, transverse bars of less length than the space between the two chains, an axial bore at each end of the transverse bars, one of the bores adapted to engage a pivot of one of the chains, a bolt shiftable in the other of the bores and having a sleeve adapted to engage a pivot of the other chain, and a spring in the last bore adapted to hold the transverse bar in engagement with the two pivots, supporting discs for the printed sheet on the bars, the discs being axially shiftable on the bars and adapted to support the printed sheet at places free from printing by displacing the bars in the direction of movement of the chains and by shifting the discs transversely to the direction of the chains.

2,026,135. STAPLING AND STITCHING MECHANISM FOR ROTARY PRINTING MACHINES. Joseph E. Meyer, Jackson Heights, N. Y., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application July 29, 1933. Serial No. 682,764. 13 Claims. (Cl. 1—7.)

1. In wire stapling mechanism, the combination of a pair of rotatable cylinders, wire engaging means arranged on one of the cylinders, wire feeding and supplying means, the wire feeding and supplying means having variably controlled gear driven means for selectively actuating and rendering inoperative the wire feeding and supplying means and other means for adjustably locating the wire engaging means in one of the cylinders at a predetermined height to operatively engage wire without the necessity of measurements.

2,026,162. DELIVERY MECHANISM FOR PRINTING MACHINES. Nicholas De Manna, Brooklyn, N. Y., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application September 14, 1932, Serial No. 633,061. 10 Claims. (Cl. 271—80.)

1. In delivery mechanism for a printing machine, the combination of a carrier, a plurality of fan delivery blades adjustably mounted on the carrier, sheet engaging means on the carrier, and other means for simultaneously adjusting all of the blades relatively to the sheet engaging means for receiving products of variable thicknesses.

2,026,173. WEB ROLL SUPPORT FOR PRINTING MACHINES. Albert J. Horton, White Plains, N. Y., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application June 22, 1934, Serial No. 731,854. 8 Claims. (Cl. 242—64.)

1. In a device for supporting rolls from which a web is fed to a machine, a rotatable frame structure including a pair of heads, a plurality of pairs of cross bars connecting the heads,

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EXECUTIVES, no less than mechanics, must make every hour productive. Time spent listening to complaints rarely produces any dividends and certainly does not inspire the hearer.

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one cross bar of each pair being positioned between the cross bars of another pair, and arm members each movable on a pair of cross bars and having means to rotatably support web rolls.

2,026,443. FOLDING MECHANISM. John R. Tomlin, Brooklyn, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, permanent trustee. Application November 3, 1930, Serial No. 492,990. 57 Claims. (Cl. 270—65.)

1. In a folder, a folding cylinder, a cutting mechanism including a cutting knife, and means for manipulating the cutting knife so that it engages with and leaves the web in substantially radial relationship to the axis of the folding cylinder.

2,026,515. CUTTING, FOLDING, AND ASSOCIATING MECHANISM FOR PRINTING MACHINES. Adolph M. Zuckerman, New York, N. Y., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application October 18, 1932, Serial No. 638,268. 19 Claims. (Cl. 270—42.)

1. In a cutting and folding mechanism for a web printing machine, a first cylinder having a web cutting knife, a second cylinder having sheet holding mechanism and an abutment adapted to cooperate with the knife, the first and second cylinders having equal diameters, a third cylinder adapted to collect sheets received directly from the second cylinder, the third cylinder having a greater diameter than the first and second cylinders, the diametral dimensions of the third cylinder being a multiple of the diametrical dimensions of the first and second cylinders, means coacting with the third cylinder to fold the collected product for delivery, and means for slowing the delivery speed of the folded products in separate stages.

2,027,177. PILE LOWERING DEVICE FOR PRINTING PRESSES. Abel Kluge and Eneval Kluge, St. Paul, Minn., assignor to Brandtjen and Kluge, Inc., St. Paul, Minn., a corporation of Minnesota. Application March 24, 1933, Serial No. 662,503. 16 Claims. (Cl. 271—88.)

1. The combination with sheet delivery means, of a lowering device including a table for accumulating the delivered sheets thereon in a pile, means for lowering the table, trip-means for interrupting the operation of the table lowering means, the trip-means being controlled by the height of the pile to maintain the uppermost sheet substantially in a given plane during the accumulation of sheets within the capacity of the device, the trip-means being actuated by the table when the accumulation of sheets in the pile has reached the capacity of the device.

2,027,412. WEB CUTTING MECHANISM FOR PRINTING MACHINES. Adolph M. Zuckerman, New York, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, permanent trustee. Application April 20, 1932, Serial No. 606,387. 16 Claims. (Cl. 270—32.)

1. In a mechanism for cutting a running web, means for severing it, in transit, into sheets of unequal lengths and full width of the web engaged by the severing means, and means for forwarding the cut sheets of each length directly from the severing means to a different destination.

2,027,866. WEB ROLL TENSIONING DEVICE. John A. Isbell, Plainfield, and Charles L. Ricards, South Plainfield, N. J., assignors to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application March 25, 1933, Serial No. 662,648. 4 Claims. (Cl. 242—75.)

1. The combination with a rotatable reel for supporting a running roll and a fresh roll for a web delivering machine, of straps supported at their upper ends above the fresh roll, movable means for supporting the lower ends of the straps below the running roll, and means for connecting the movable means with the reel to move therewith but in a direction to increase the wrap around the running roll as that roll is moved toward discharging position

Offset Lith:

2,025,045. PROCESS AND APPARATUS FOR DAMPENING THE PLATE CYLINDERS OF LITHOGRAPHIC AND ANALOGOUS PRESSES. John G. Goedike, San Antonio, Tex. Application October 21, 1930, Serial No. 490,311. 5 Claims. (Cl. 101—147.) (Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O.G. 757.)

1. An apparatus for chilling a hollow cylindrical lithographic plate substantially below the dew point of the atmosphere surrounding the plate for producing a film of moisture on the exterior surface thereof comprising a cooling system containing a fluid medium, a chamber, and piping including an inlet pipe for providing a passage-way for leading the fluid medium from the cooling system into the interior of the plate, means forming a passage-way for leading the fluid medium out of the plate into the cooling system the means comprising a hollow journal on the plate, a housing containing an aperture surrounding one end of the hollow journal, an exhaust pipe having one of its ends connected to the aperture of the housing, a T connected to the other end of the exhaust pipe, and piping connecting the T with the cooling system, the hollow journal, exhaust pipe and the T surrounding the inlet pipe, and a valve on the T for insertion of warm medium into the plate cylinder.

2,025,046. APPARATUS FOR DAMPENING THE PLATE CYLINDERS OF LITHOGRAPHIC AND ANALOGOUS PRESSES. John G. Goedike, San Antonio, Tex. Application April 16, 1931, Serial No. 530,584. 8 Claims. (Cl. 101—147.) (Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O.G. 757.)

1. A mechanism for lithographing comprising a movable lithographic surface mounted on a fixed frame, a closed refrigerating system comprising a refrigerating mechanism connected to the frame and means for reducing the temperature of the lithographic surface substantially to the dew point of the surrounding atmosphere for condensing a film of atmosperhic moisture thereon, the sole source of the condensed moisture comprising the atmosphere surrounding the surface, the means being mounted to move with the surface and forming the low pressure side of the refrigerating system.

Miscellaneous:

2,022,978. OBJECTIVES FOR TAKING, PRINTING, AND PROJECTING LENTICULAR FILMS. Kurt Rantsch, Teltow-Seehof, near Berlin, Germany, assignor to Opticolor, Aktiengesellschaft, Glarus, Switzerland, a corporation of Switzerland. Application June 15, 1934, Serial No. 730,715. In Germany June 22, 1933. 7 Claims. (Cl. 95—2.)

1. An optical system for use with lenticulated films comprising an objective and a diaphragm, a color filter spaced from the diaphragm and comprising recurrent series of zones of different color values, the sum of the values in any one series giving substantially the effect of white light, and masking means applied to certain of the zones, the amount of masking effected on the various zones progressively changing from the center of the filter towards the edge zones.

2,024,086. PROCESS FOR PRODUCING A PRINTING PLATE. Ernest S. Ballard, Berkeley, Calif., assignor, by mesne assignments, to Standard Process Corporation, Chicago, Ill., a corporation of Delaware. Application December 12, 1927, Serial No. 239,388. 4 Claims. (Cl. 41—25.)

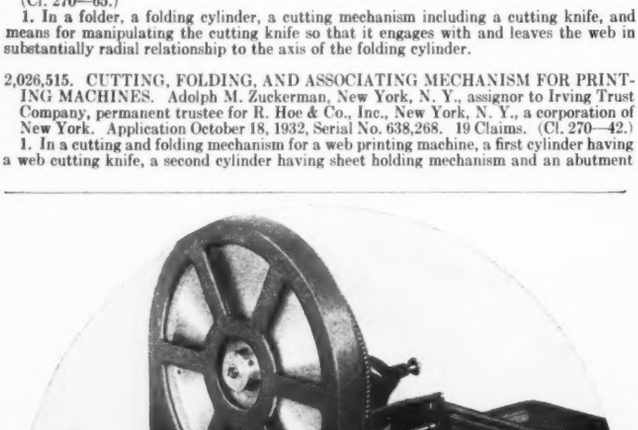
1. A method of preparing a printing plate consisting in making a screen positive in which tones and shadows are represented by distinct dots in photographic gradation, producing a negative of the screen positive on a sensitive plate, sensitizing a smooth metal plate superposing the negative on the sensitized plate and subjecting the plate to light transmitted through the dot formation on the sensitized plate, developing the plate and fixing its coating so that it becomes non-conducting, and then electro-plating on the fixed coating to produce a printing plate having distinct openings of graduated sizes and stripping the plate from the coating.

2,024,087. PRINTING PLATE. Ernest S. Ballard, Berkeley, Calif., assignor to Standard Process Corporation, Chicago, Ill., a corporation of Delaware. Original application December 12, 1927, Serial No. 239,388. Divided and this application October 21, 1931, Serial No. 570,221. 6 Claims. (Cl. 101—127.)

6. A printing plate consisting of a metal body having non-printing areas formed by the plane of its surface, and printing areas formed by means of separated and distinct dot-like openings of various sizes formed in the plate, every dot-like opening being completely isolated and separated from adjacent dot-like openings by a non-printing area and having a maximum dimension smaller than the distance between the centers of any two openings in the plate, the non-printing areas being arranged so as to be parallel to each other regardless of their width.

2,022,768. PROCESS OF PRINTING COPIES FROM A LENTICULAR FILM. Gerd Heymer, Dessau-Ziebigk, Germany, assignor to Agfa Ansco Corporation, Binghamton, N. Y., a corporation of New York. Application October 3, 1932, Serial No. 636,056. In Germany October 6, 1931. 6 Claims. (Cl. 88—24.)

1. A process of printing without lateral inversion a lenticular negative film onto another lenticular film destined for the positive picture which comprises illuminating the negative



Multiplied Production

The ROUSE BAND SAW multiplies production by cutting down waste time between the line casting machine and the make-up bank.

It selects slug lengths—every slug may be different—and saws to accurate measure a full galley of slugs in 35 seconds. The process is simple, easy and accurate. It does the work of minutes in seconds.

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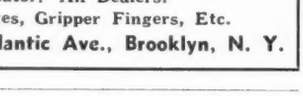
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film through the refracting surface under optical conditions corresponding with those in taking, condensing the beam of light emanating from the negative film by means of a converging lens or lens system, and projecting in front of the positive film an image of the plane corresponding to that which in the original exposure contained the multicolor filter or the virtual image thereof at the same distance from the film as the multi-color filter shall have in projecting the printed film while simultaneously projecting the negative film onto the positive film.

2,024,395. LABEL IMPRINTING DEVICE. Jacob Silverman, Brooklyn, N. Y. Application May 22, 1934, Serial No. 726,925. 4 Claims. (Cl. 101—287.)

3. In a label printing device having printing mechanism and a label stack hopper, means to move a label from the hopper to a printing position, and means to hold the label in the position until displaced, the latter means comprising a flared portion on the hopper having contact with the upper-face of the label and cooperating spring means having contact with the under-face of the label.

2,025,392. HOT STAMP CHIP PRINTING MACHINE. Elmer Theodore Knitter, San Francisco, Calif. Application April 11, 1932, Serial No. 604,367. 3 Claims. (Cl. 271—62.)

1. In a printing machine, the combination of a chip feeding means comprising a feed cylinder having a slot extending lengthwise thereof, a ring surrounding and slidable upon the cylinder, and a retractile pin carried by the ring and adapted to project into the cylinder through the aforementioned slot.

2,026,377. ALIGNING DEVICE FOR PRINTING PLATES. Charles Thomas Comstock, Massapequa, N. Y. Application March 8, 1934, Serial No. 714,598. 4 Claims. (Cl. 33—184.5.)

1. An aligning device for printing forms comprising a printer's table adapted to support a series of chases mounted at predetermined positions thereon, an imposing frame swingingly and slidingly mounted at the rear of the table having means for ascertaining the position for printing forms in a chase and indicating the ascertained position in an adjoining chase and means carried by the frame to space the frame from the chase.

2,026,402. MACHINE FOR CUTTING PAPER OR THE LIKE. Phil G. Schlemmer, Nanuet, N. Y., assignor, by mesne assignments, to Rose Barbara Henderson. Application November 17, 1933, Serial No. 698,382. 3 Claims. (Cl. 164—42.)

1. In a device, superposed feed rolls which are mounted upon superposed shafts, gears connecting the shafts so that they turn in opposite directions, a ratchet wheel, connecting gear means which connect the ratchet wheel to one of the gears, a pivoted arm having a pawl which is adapted to intermittently turn the ratchet wheel in the same direction when the arm is turned to and fro, the feed rolls being operative to intermittently feed a strip of material, and cutting mechanism which is operable in a direction which is inclined to the line of feed.

2,027,407. APPARATUS FOR CLEANING ROLLS. Guido von Webern, Dayton, Ohio, assignor to Oxford Varnish Corporation, Detroit, Mich., a corporation of Michigan. Application February 9, 1934, Serial No. 710,518. 2 Claims. (Cl. 15—4.)

1. A printing roll cleaning mechanism, comprising a frame, a pair of spaced rollers mounted in the frame and arranged to simultaneously support a roll to be cleaned, each of the rollers being provided with a fabric belt, the belts being looped about their respective rollers, the portion of the belts looped over the rollers supporting the roll to be cleaned, means to maintain the belts taut, means to rotate the rollers at different peripheral speeds, and means to apply a solvent to one of the belts.

Plate Making:

2,023,669. ART OF PRINTING. Valentin Dietz, Cologne, Germany, assignor to Erwin B. Elliott and Maurice C. Boyd, both of Miami, Fla. Application January 6, 1933, Serial No. 650,380. In Germany October 11, 1932. 12 Claims. (Cl. 101—149.)

4. In the art of printing, tanning the parts of a suitably-supported gelatinous layer in agreement with the image to be printed by such layer to make them incapable of swelling in varying degree by the swelling medium employed, swelling the distensible parts of such layer and at the same time making them ink-repellent in a bath comprising water and glycerine and containing as two additional agents, a bile salt and an amine, inking the unmoistened printing surface of the layer by an ink containing one of the agents and printing with such inked surface.

2,024,840. PRINTING PLATE AND METHOD OF MAKING THE SAME. Edgar J Wright, Williston Park, N. Y. Application June 18, 1934, Serial No. 731,050. 4 Claims.. (Cl. 41—25.)

1. The method of making impression surfaces consisting in producing a matrix of a printing surface, rotating it in an inclined plane and during rotation spraying its surface with liquid material capable of hardening until a substantial body of type material is built up and subsequently applying a supporting backing to the deposited material.

2,025,559. POLYCHROMATIC PRINTING PLATE. Serge Tchechonin, Paris, France. No Drawing. Application January 26, 1935, Serial No. 3,643. 7 Claims. (Cl. 101—131.)

1. A printing plate for polychromatic reproduction comprising an alcohol soluble base, a fatty body, naphthaline, and a pigment.

2,026,021. PRINTING MEMBER. Stanley A. Danser, Rochester, N. Y., assignor, by mesne assignments, to Vivian M. Stacy-Bush, Rochester, N. Y. Application August 5, 1930, Serial No. 473,199. Renewed November 14, 1935. 9 Claims. (Cl. 101—379.)

1. A printing plate, adapted for use in a printing press, comprising: a supporting base, of substantially uniform thickness; and a printing face, of a rubber composition, carried by the base; the base being of a rubber composition, relatively harder, at least semi-hard, and substantially rigid, itself fixedly supporting the face.

2,026,603. ETCHING PROCESS. Robert A. Zarse, West Allis, Wis. Application April 25, 1933, Serial No. 667,895. 3 Claims. (Cl. 41—43.)

2. A process of etching metal printing forms having enamel coatings on the surface to be etched, consisting in introducing the forms into a mixture of a solution containing approximately one gallon of chloride of iron and approximately three ounces of sodium chloride.

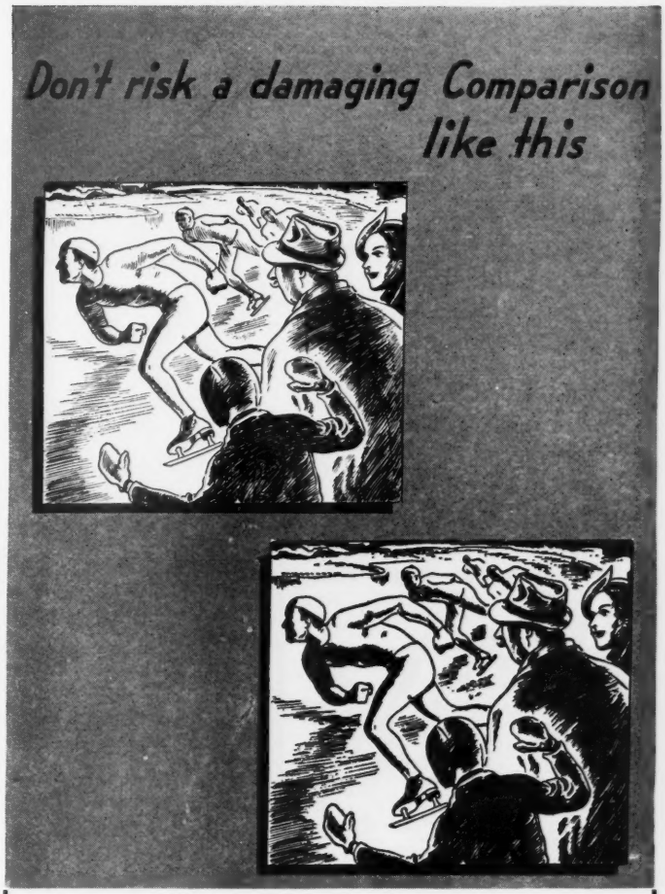
2,027,524. METHOD AND APPARATUS FOR PREPARING STEREOTYPE MATRICES. Harland Fankboner, Chicago, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application December 4, 1931, Serial No. 578,914. In Great Britain September 25, 1931. 21 Claims. (Cl. 33—184.5.)

1. The method of treating a set of matrices for casting multicolor stereotype plates which comprises applying gauging devices to the series of matrices and selectively applying heat to a matrix or matrices to bring them to the same size preparatory to casting the corresponding color plates therefrom.

Printing Presses:

2,022,746. NEWSPAPER PRINTING MACHINE. Harold Smytherman, Twickenham, England, assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, permanent trustee. Application November 20, 1931, Serial No. 576,273. 2 Claims. (Cl. 101—365.)

1. An inking mechanism for a printing machine adapted to print a plurality of page widthwise of the machine, comprising in combination, a reservoir arranged at each side of the machine, an ink pump assembly secured within the reservoir, each of the ink pump



LOOK at these two cuts, Mr. Engraver. What if a cut made on tough, sturdy metal was locked up in the same form with a cut that wore down like the lower one shown? Could you blame a printer or advertiser for yelling—plenty? Both of these cuts were carefully made by the same engraver, but the metal in the lower one just couldn't take it.

Wise engravers today don't risk damaging comparisons like this. They specify A-Z Alloy for all long direct printing or stereotyping runs, because they know this metal is especially made to stand up. A-Z Alloy is made according to an exact formula which assures stamina and quick, clean etching. And, it is melted and cast in the electric induction furnace for absolute uniformity.

Look for the A-Z Alloy trademark on the back of every sheet you buy. Leading metal distributors in the principal cities of the United States, Canada and Great Britain can now assure prompt delivery.

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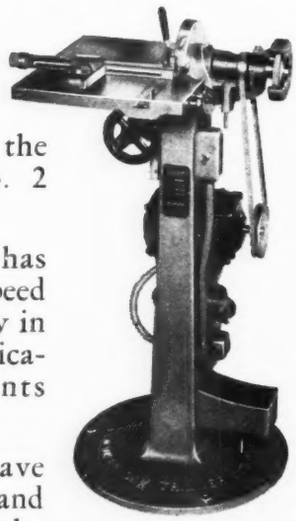

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Recent improvements have added to its sturdiness, and increased its life. Yet the price is only $250.

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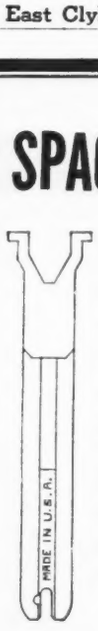

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assemblies serving to propel ink from its reservoir, an ink rail and a plurality of conduits connected to each of the assemblies and adapted to deliver ink from the pump assembly and discharge same at the rail, the plurality of conduits being arranged on the ink rail in spaced groups between the reservoirs, each of the groups being adapted to supply ink to a separate page.

2,022,840. INKING MECHANISM FOR MULTICOLOR PRINTING PRESSES. Oscar H. Banker, Philadelphia, Pa. Original application July 7, 1927, Serial No. 203,880. Divided and this application September 24, 1932, Serial No. 634,672. 7 Claims. (Cl. 101—186.)

1. In a multi-color printing press, sets of inking mechanisms, each set having a pair of inking rolls mounted on a support which is rotatable about an axis remote from the axes of the printing rolls, and continuously revolving means revolved into intermittent driving relation with the rolls to progressively move the inking rolls of the sets into and out of their inking positions.

2,023,045. TICKET FEEDING AND PRINTING. Carl A. Flood, Framingham, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass., a corporation of Massachusetts. Application January 5, 1933, Serial No. 650,285. 28 Claims. (Cl. 271—88.)

27. A machine for printing either short or long tickets comprising a printer, strip-feed means for feeding tickets to the printer in strip form, a cutter for severing the tickets from the strip, means for actuating the printer twice for each ticket, and selectively operable means for effecting, in the interval between each two printings, a relative shift between printer and long tickets only so that short tickets are printed twice in one location and long tickets in two locations, the relationship between the cutter and printer being such that both printings are impressed on each short ticket while one edge of the ticket is at the cutting line of the cutter.

2,024,354. PRINTING MACHINE. Irving Gurwick, Harmon, N. Y., assignor to Shellmar Products Company, Chicago, Ill., a corporation of Delaware. Application July 31, 1933, Serial No. 682,923. 15 Claims. (Cl. 101—152.)

1. In an intaglio printing machine for printing on transparent cellulose sheeting, means for feeding a web of the transparent cellulose sheeting, a printing unit receiving the web and including an etched printing cylinder and color bath therefor, a relatively small heating roll positioned adjacent the printing cylinder, and means for moving the heating roll into and out of contact with a web passing through the machine.

2,024,594. PRINTING MACHINE. Emil L. Mueller, Rutherford, N. J. Application September 22, 1931, Serial No. 564,377. 27 Claims. (Cl. 101—269.)

1. A printing mechanism comprising, in combination, a table having printing type thereon at one point in the length of the table, a printing roll mounted to travel back and forth along the length of the table from one side of the printing type to the other being normally at one side of the printing type and adapted to traverse the printing type to the opposite side for receiving a sheet to be printed and to again traverse the printing type to the first side for performing the printing operation, a paper sheet feed mechanism arranged at the mentioned opposite side of the printing type adapted to feed to the printing roll a paper sheet to be printed, an inking roller also mounted to travel back and forth along the length of the table from one side of the printing type to the other and to apply ink to the printing type at each traversing of the printing type, and a latch device to connect the inking roller to travel with the printing roll, the latch device including means automatically operable to connect the inking roller for travel with the printing roll, and the latch device being manually operable at will to disconnect the elements.

2,025,746. PRINTING MACHINE ROLLER AND CYLINDER. Albert J. Horton, White Plains, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, permanent trustee. Application April 15, 1932, Serial No. 605,423. 20 Claims. (Cl. 101—375.)

1. In a roller, the combination of an outer shell, an inner tubular member having a cylindrical centre portion of relatively large diameter and end portions tapering to a smaller diameter at their extremities; the inner tubular member being secured within the shell by means positioned inwardly of the ends of the shell and arranged at positions adjacent the tapering portions formed on the tubular member.

2,025,927. PRINTING PRESS. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application March 5, 1931, Serial No. 520,292. Renewed May 21, 1935. 8 Claims. (Cl. 270—5.)

1. A printing unit for a web printing press comprising a reversible printing couple having a continuous feed reversible inking system and a reversible multiple printing set also having a continuous feed reversible inking system, and means for leading a web sequentially in either direction through the printing couple and in an opposite direction through the multiple printing set, each inking system including a fountain roll adapted to run continuously in one direction, a distributor roll reversible with the printing couple or set, and means adjustable to maintain a proper transfer of ink between the fountain roll and distributor roll regardless of their relative direction of rotation.

2,026,480. ROTARY PRINTING MACHINE. Frederick Grafton Lougee, London, England, assignor to R. Hoe & Co., Inc., New York, N. Y.; Irving Trust Company, permanent trustee. Application March 16, 1931, Serial No. 522,914. In Great Britain March 21, 1930. 7 Claims. (Cl. 101—349.)

1. In a rotary printing machine including an ink reservoir and ink distributing mechanism, means for confining ink mist within the proximity of the ink distributing mechanism; the means including a receptacle hingedly connected to the printing machine and enclosing the ink distributing mechanism, there being perforations formed in the receptacle for drawing off the ink mist and collecting same in other means connected to the receptacle.

2,027,322. PRINTER'S BLANKET. Harold D. Rice, Barrington, R. I., assignor, by mesne assignments, to United States Rubber Company, New York, N. Y., a corporation of New Jersey. Application June 21, 1933, Serial No. 676,854. 9 Claims. (Cl. 154—54.5.)

1. A printer's blanket consisting of a base and a coating of the solids deposit of an aqueous dispersion of rubber vulcanized to the base.

2,027,797. PRINTING PRESS AND METHOD OF PRINTING. Francis V. Toppin, Lyndhurst, N. J. Application December 12, 1932, Serial No. 646,792. 18 Claims. (Cl. 101—272.)

1. The method of printing, which consists of registering inner forward corners of two spaced stacks of sheets, simultaneously selecting a sheet from each registered stack, feeding the sheets and simultaneously impressing them respectively on two printing forms, repeating the selecting, feeding and impressing on successive registered sheets of the stacks, delivering the impressed sheets in two stacks, returning the stacks to register position in varied relation to their original register position so that the presentation of the sheets thereof to the printing forms is varied, and continuing the selecting, feeding, impressing and delivering of the sheets

2,027,850. INK FOUNTAIN BACK. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application July 7, 1932, Serial No. 621,212. 4 Claims. (Cl. 101—350.)

1. In a printing press, the combination with a pair of printing couples and inking mechanisms therefor comprising fountain rolls, of a motor for driving the press located below the inking mechanisms having a connection with the printing couples for driving them, a fountain blade for each of the fountain rolls adapted to be adjusted at different points along its length, a series of plungers for providing the adjustment, and a series of screws for operating the plungers, the screws all extending to the end of the press opposite that at which the motor is located.

New Sales Manager

Fred A. White, manager of the Chicago Agency of the Mergenthaler Linotype Company, announces the appointment of Martin J. Leonard as sales manager for the Chicago Agency.

Folding Boxes

(*Continued from Page 16*)

this new machine can be converted into a cutter and creaser. The problem of cutting long or short when used as a cutter and creaser has been taken care of by the manufacturer.

Allowances for Draw of Creases According to Thickness of Stock

When the cutting and creasing is to be run on a cylinder cutter and creaser and the printing is positioned from a rubbed-out impression of the cutting and creasing die, a rule in general use is to make allowance for the draw of the creases by moving the printing plate away from the gripper edge of the press one point for every four creases on stock ranging from 18 to 22 points in thickness, one point for every three creases on stock ranging from 22 to 28 points, and one point for every two creases on all stock over 28 points. No allowance is made for stock under 18 points.

It is a common error to print a job, having made allowance for the creasing draw, only to find later that the cutting and creasing die must be shifted to suit the printing. When the position of the printing in relation to the creases must be perfect, the foregoing method of making allowance in the printing form will not suffice. Perfect register of the printing and the creases necessitates that the operation of putting the die on the cutter and creaser, making it ready and cutting the creases precede the printing operations. A few impressions are then pulled and given to the printing pressman. These creased sheets enable the pressman to place his printing plates in exact position so that when a job is cut and creased the printing position is in proper register.

Keep the Machine Busy

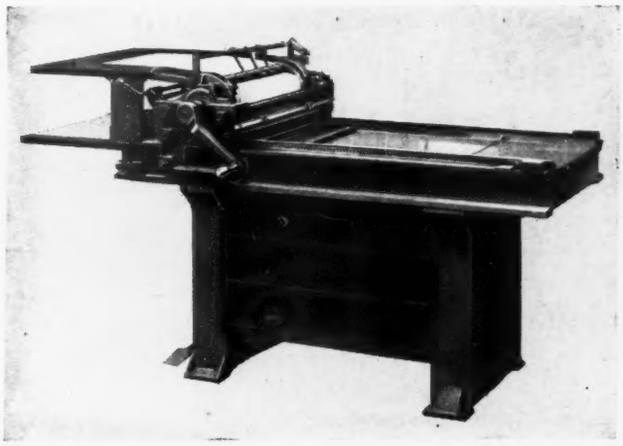
If a cutter and creaser is permitted to stand idle until the printing is finished and returned to it, great loss of time and money is incurred. Fortunately, however, with modern two-revolution cutter and creaser, the die, the cutting makeready and the jacket with the creases cut may be removed (after the position sheets have been run), which will permit going ahead with another cutting and creasing job. The first job may be replaced when desired with very little lost time; the die, the makeready and the jacket with the creases cut fitting in exact position.

Varnishing and Lacquering Boxes

Varnishing machines with drying ovens are a part of the equipment in some plants; while in others overprinting the job with varnish or lacquer is in vogue. This latter method requires a great deal of care to prevent the varnished or lacquered sheets from sticking together while drying.

The general method used in the larger plants to lacquer or varnish cartons is to hand feed, one at a time, the complete sheet through a varnishing machine, somewhat similar in design to a drum type cylinder printing press. The varnish or lacquer is stored in a fountain and is conveyed by a composition roller from the fountain over the sheet as it travels around the cylinder.

Strips of tape or other material are sometimes hung between the roller and the sheet to keep certain sections



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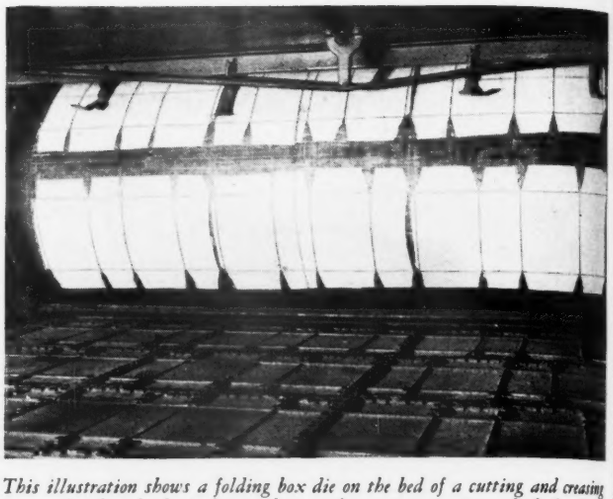
of the sheet, such as glue laps, free from lacquer. When the lacquered sheet has traveled around the drum, it is carried by tapes to a long metal oven, heated by a dry heat to 150 deg. F. The sheets travel on tapes through the oven and require approximately five minutes for drying before they leave the oven and are ready for piling. The length of the oven is determined by the speed of the varnishing machine.

Construction of Dies

Cutting and creasing dies are largely made from laminated wood, although metal dies are used in some plants, particularly those near the seaboard, where atmospheric conditions cause a stretch or warp in the wood and at times create a slight change in the size of the die. It is more difficult to make an all-metal die than one of wood because of the irregular shapes of the locks and tucks. An ideal die is one with the body of metal and with the knives surrounding the locks and tucks supported by wood. This type of die will not stretch, warp nor shrink and may be held indefinitely for repeat orders.



This illustration shows a folding box die on the bed of a cutting and creasing press. On the cylinder jacket can be seen the counter score into which the creases from the die have been scored.

Being softer, bending knives in cutting dies generally wear out before the straight knives, and on long runs it is sometimes advisable to harden the bending knives after they have been shaped and before they are placed in the die.

For the purpose of securing an even depth of creases on a two-revolution cutter and creaser, it is essential that the creasing rules be of two heights. Rules parallel to the cylinder grippers should be approximately 0.007 in. higher than the rules "running around" the cylinder.

Embossing Plates

Considerable cold embossing is done on the two-revolution cutter and creaser. The best embossing plates are made of steel or brass, the same thickness as electrotypes which permits mounting on patent base.

When embossing, work with one row of plates at a time, beginning with the gripper-edge row. Register to the printing and emboss that row before proceeding with the second row. If all the embossing plates were to be registered first to the printing before embossing, the back rows would be out of register when the first rows were embossed, on account of the embossing draw.

Heights of Cutting Knives

We will give further consideration to the heights and widths of cutting knives and to cutting and creasing makeready on cylinder machines.

There is not much to say about the width of cutting knives. Sometimes it is advisable to have three-point

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cutting knives, but in most cases two-point is preferable. That there is no standard height for cutting rules as there is in printing, where 0.918 in. is the standard for type high, gives rise to many difficulties. Cutting knives are as low as 0.918 in., and as high as 0.942 in. Because of this lack of standardization, press builders are almost compelled to custom-build their cutters and creasers to conform to the cutting knife of the company operating the machine. The two heights generally used are 0.923 in. and 0.937 in.

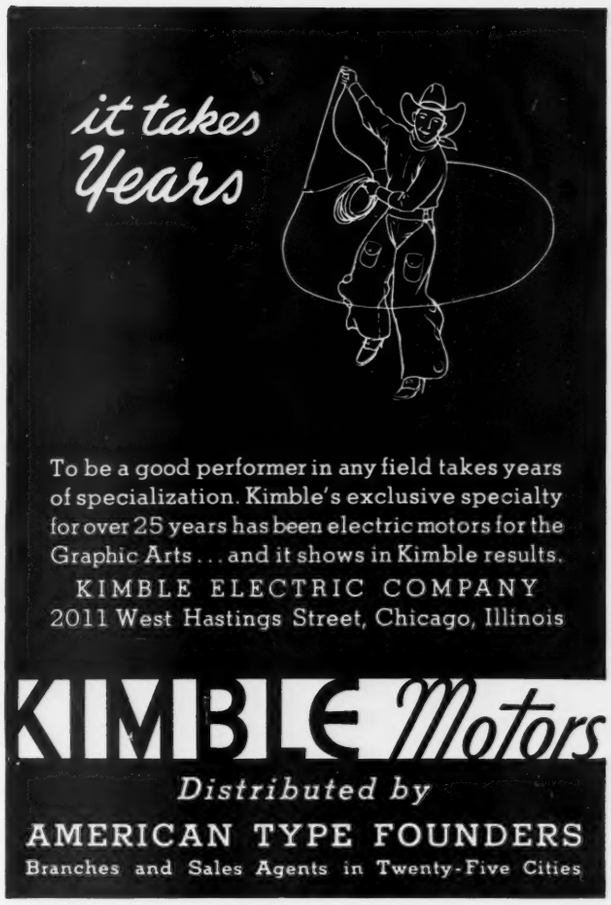
Some printers use two heights of cutting knives, but the cutting knives in any one die should be of only one height. The contact on a platen press is the same both ways with respect to both cutting and creasing, but on a cylinder press it requires more pressure across the cylinder than around the cylinder. The following is an example of the action of a cylinder cutter and creaser: If one should attempt to cut a piece of tin with a pair of shears, he would find it comparatively easy to shear the tin, just as cutting around the cylinder is easy; on the other hand, if one were compelled to cut the tin with a blow, it would require more pressure than with a shearing stroke. This is comparable to the force required for cutting across the cylinder. Consequently, on a two-revolution machine we must attain more impression on the cross knives. The difference in impression should be approximately 0.007 in. on a two-revolution machine and about 0.005 in. on a drum cylinder; that is, it requires 0.007 in. more impression across than it does around the cylinder.

A pressman on the cutting and creasing makeready, whether it is on a platen or a cylinder, makes ready under the jacket, so there should be only one height cutting knife. When making ready on a two-revolution cutter and creaser he should, on general principles, build up every knife across the cylinder 0.007 in. and on a drum cylinder about 0.005 in. for reasons outlined above. The cutting makeready is somewhat similar to the makeready of a printing press; pulling an impression on top or draw sheet stock about 0.006 in., with the cutting knives barely cutting through around the cylinder, and building up 0.007 in. on knives across the cylinder. For the purpose of "building up" use ¼ in. gum or stay paper. Then hang that sheet in its proper place under the jacket and remove a sheet of the same thickness, that is, 0.006 in. to compensate for the one patched up. This procedure should make all knives cut evenly.

Relation to Creasing Rules

Of course, he cannot do anything like this with the creasing rules. They must be of the right height in the die. As has been stated previously, it takes about 0.007 in. more impression to cut and crease across the cylinder than it does around the cylinder, so the creasing rules around the cylinder should be 0.007 in. lower than the ones across the cylinder. This does not apply to gang dies. It applies only to boxes where the long crease is 4 in. to 6 in. or longer, and the short crease perhaps 2 in.

The one big factor not thoroughly understood in some carton plants is the theory of the height of the creasing rules in relation to the stock used. When asked the thickness of their stock, many operators reply that the thinnest used is 12 points, and from there the thicknesses range up to 60 points. Asked what height of creasing rules they have for these various thicknesses of stock, they reply that they have only the one height. The theory is that the creasing rule should be lower than the cutting knife to the extent of the thickness of the stock used. If running 40-point stock, creasing rules should be 40 points lower than the cutting knives. This means across the cylinder from bearer to bearer. Around the cylinder, the rules should be about 0.007 in. lower.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Unlike printing, which is on the surface of the sheet, cutting and creasing makeready requires two operations: first the cutting makeready under the jacket, then the creasing makeready (cutting the creases) on the face of the jacket. If a crease is too deep, it cracks and breaks the fiber of the stock; in other words, it crushes its way through farther than it should, so that when the box is bent it breaks through.

Some carton manufacturers complain that they cannot have so many heights of creasing rules. The answer is, it is best to have the creasing rules low enough for the thickest stocks used and to underlay them for thinner stocks. If one understands the theory, one knows how much to underlay the creasing rules. The underlay is not suitable for more than 75,000 impressions because it is gum paper, which will give a little to steady pounding. Some plants use metal strips as an underlay on the creasing rules for long runs.

One fact that cannot be explained readily is that it requires more pressure to cut damp stock than dry stock. If one makes ready with damp stock and runs into dry stock, the latter, it will be found, will cut too freely; conversely, if one makes ready with dry stock and runs into damp stock, the cutting knives will not cut sufficiently. This is difficult to understand, as the cutting knife must touch the jacket and should cut the damp as well as the dry stock with equal pressure.

The grades of stock and the way they conform to the cylinder are also big factors in box making. The long score should always be across the grain whenever possible.

Thickness of Creasing Rules

Now as to the thickness of the creasing rules. Most creasing rules are 2 points to about 0.025 in. thickness in stock, 3 points for 0.025 in. to 0.035 in., 4 points for 0.045 in., and 6 points for 0.060 in. This is merely a general rule for figuring the thickness of the creasing rules required on various thicknesses of stock. The thickness of the rules used are standardized, namely, 2, 3, 4 and 6 points.

The Counter

The *counter* embodies a lot of things. Some call it a tympan; others a blotter. This is used to cut the creases. Manila tag board is the meterial commonly used. This board, with the creases shellacked at the end of the day, gives a good crease. Shellacking the creases occasionally on long runs makes the counter hard, like press board. Press board, of course, is the best, especially on long runs of perhaps half a million impressions, although it takes longer to cut the creases.

Here is something to be remembered as to the height of the board to be used for the counter: The creasing rule should just "kiss" the surface of the counter before scoring the creases. When the creasing rule presses into the counter before the creases are cut, the creases will be too deep, causing the stock to crack when folded.

There must be a beginning for a counter. Sixteen points is not very thick, so start with 16 points for the thinnest board used. Twenty-two point stock would require a 22-point counter. The theory of the height of the counter is that it should be the same thickness as the stock being run, but it does not work out in practice. It is obvious that a 60-point counter could not be used for 60-point board because the creases would be too deep;

Continued on Page 54

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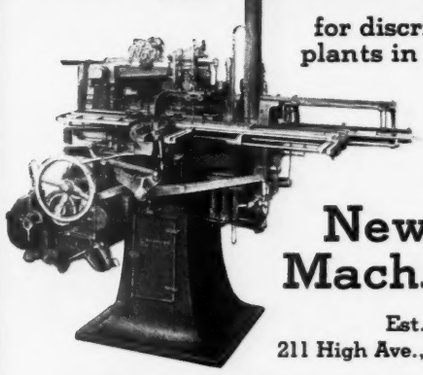
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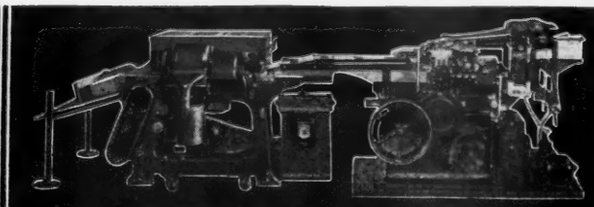
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Folding Boxes

(Continued from Page 52)

so after 22 points the counter is increased only 2 points for every 6-point increase in stock.

Pressmen may use various thicknesses of counters. If the stock warrants and it has good bending qualities, it may crease all right. If the stock has poor bending qualities, the creases may not be satisfactory, in which case it is necessary to correct the height of the counter. In other words, one might get a good crease with the counter the wrong height if he has good bending board, but it is best to use the right height of counter to be sure of the proper crease.

It is a nice point to know just how far to press the crease into the stock so as to have a proper crease without breaking the stock. *The proper width of a crease is double the thickness of the stock used, plus the thickness of the creasing rule.*

Chemistry

(Continued from Page 19)

are all the more important when applied to printing in bright color from display forms of type.

Black and many different colors of printing ink can be printed direct from forms of machine composition without the lead in the machine composition causing changes in the basic color of the proper make of ink, but there are some bright colors of ink, including vermilion red, which may be affected by the lead in machine composition. To prevent any such trouble, on long runs, the surface of machine composition can be nickel-plated and, of course, this process also gives the form a harder printing surface. In like manner, stereotype plates of machine composition forms, halftones and zinc etchings can be nickel-plated.

(5). Printing ink of any kind or color can be made to dry after printing, either by absorption or oxidation—according to the kind of paper stock used. On soft and absorbent papers, such as newsprint, book paper, blotting, etc., the ink can be made or manipulated in such a manner as to dry quickly by absorption. Among the common, non-drying reducers which may be mixed (in small quantity) with ink to be used on soft absorbent papers are: Thin varnish, raw linseed oil, olive oil, tallow, sperm oil, lard or vaseline. Only a small part of any of these reducers should be mixed with a batch of ink. A small part of Japan drier may also be mixed with an ink containing a non-drying reducer, to accelerate drying of the ink on a soft paper.

Among the hard papers and sheet material on which printing ink is intended to dry by oxidation, are: Linen ledger, rag bond paper, rag cover stock, metallic coated paper, glassine, parchment, pressboard, smooth bristol board, celluloid, flint glazed paper, cloth covered paper and imitation leather. In many instances where it is necessary to reduce the body of the ink to be used for printing on any of these hard stocks, a softer ink of the same color can be used as a reducer with excellent results. To accelerate drying of an ink used in printing on a hard paper or other material (or where surface drying of the ink is to occur), a small part of any of the following substances may be mixed with the batch of ink: Boiled linseed oil, thin gloss varnish, turpentine, copal varnish, poppy oil or any of the well-known makes of paste drier supplied by printing ink manufacturing companies.

The proper working temperature of a pressroom should be 70 deg. F. Practically all makes and types of printing ink will work well under this temperature.

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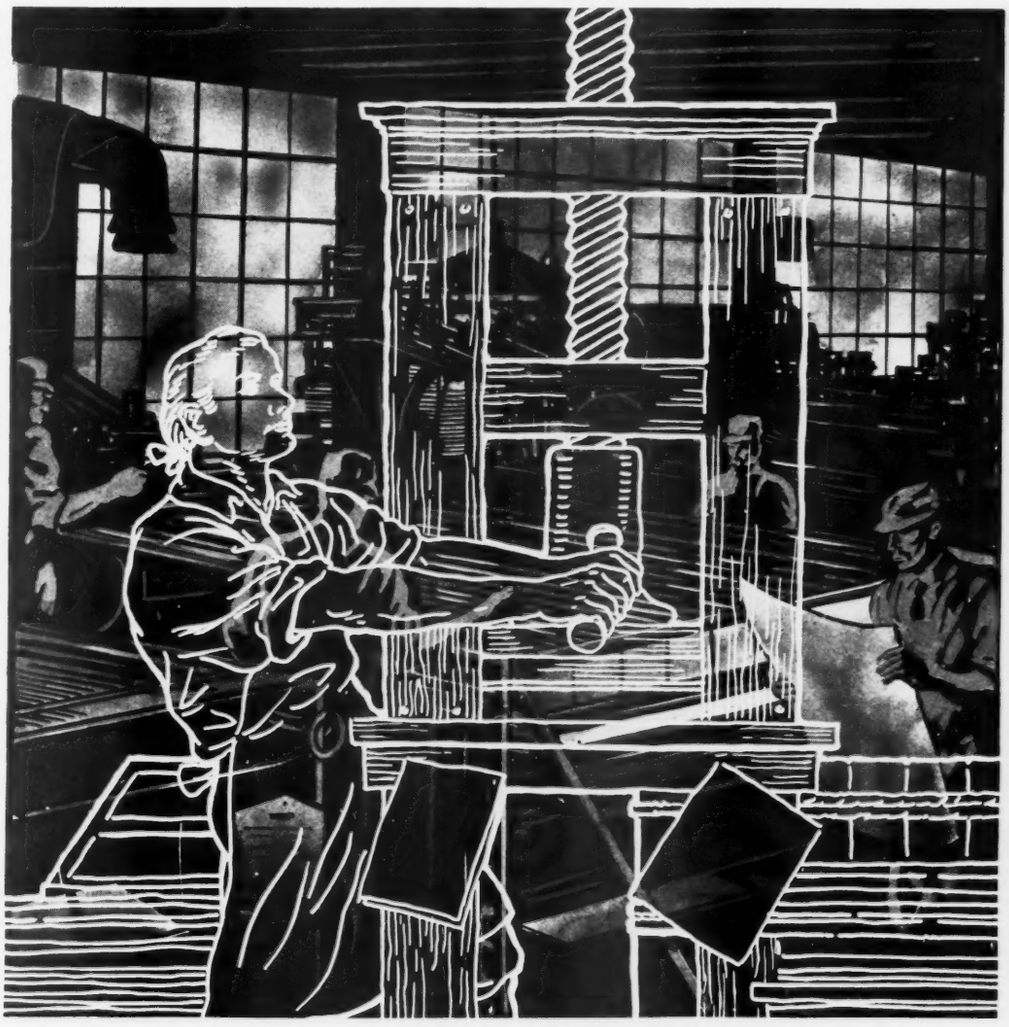

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